

物流工程专业辅修学士学位培养方案

Logistics Engineering Minor Bachelor's Degree Cultivation Program

一、培养目标 Objectives

物流工程专业致力于培养德智体美劳全面发展，具有大系统优化思想、供应链一体化管理思想和广阔的国际化视野，优秀创新意识、团队合作能力和终身学习能力，能够在物流领域特别是综合运输领域从事规划设计、项目管理实施、技术系统集成应用、科学研究等工作的复合型人才。

毕业 5 年左右成长为能够在与物流工程相关企业、设计研究院所从事物流系统设计与开发、物流系统运作及管理工作的专门骨干人才。

Logistics engineering specialty is committed to cultivating compound talents with all-round development of morality, intelligence, sports, beauty and labor, who are to possess the idea of large-scale system optimization, integrated supply chain management and broad internationalization vision, excellent innovation consciousness, team cooperation ability and lifelong learning ability. Moreover, the nurtured talents can engage in planning and design, project management implementation, integrated application of technology and system, scientific research and so on in the field of logistics, especially in the field of integrated transportation.

Graduated for 5 years or so, cultivated students are able to become a senior specialist in logistics system design and development, logistics system operation and management in enterprises related to logistics engineering and design institutes.

二、毕业要求 Graduation Requirements

| 毕业要求一级指标 First-level index of graduation requirements | 毕业要求二级指标 Second-level index of graduation requirements |
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| 1. 思想品德： 忠党爱国，具备勤劳勇敢、自强不息的民族精神，德智体美劳全面发展的行业人才。 1. Morality: Have ardent love for the motherland and the Communist Party of China, have the character of industrious and brave, have national spirit of constant self-improvement, and professional talents of all-around development of virtue, intellect, physical education, beauty and labor. | 1.1 爱国爱党，坚决拥护党的领导，深入理解中国共产党的行动指南。 1.1 Love our country, support the communist party and understand the communist party of china's guidelines for action deeply. |
| | 1.2 具备踏实扬华、自强不息的交大精神，以及为国家富强、行业进步而奋斗的志向和社会责任感。 1.2 Take the spirit of SWJTU of waiting for talents and revitalizing the Chinese Nation, and constantly strive to become stronger, have the ambition to realize the great renaissance of the Chinese nation and sense of social responsibility. |
| | 1.3 具有良好的社会公德和法律意识，主动适应新时代社会主义现代化建设和物流行业发展需求。 1.3 Have the sense of social morals and law consciousness, adapt to new era's great modern socialist development and the developing requirements of logistics industry. |

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| <p>2.工程知识：能够将数学、自然科学、工程基础和专业知识用于解决复杂物流系统工程问题。 2.Engineering knowledge: Be able to use mathematics, science, engineering fundamentals and expertise to solve complex logistics system engineering problems</p> | <p>2.1掌握数学与自然科学知识，能将其用于物流系统分析、建模和求解。 2.1 Be master of the mathematics and science knowledge, be able to mathematically model, analyze and solve logistics system engineering systems. 2.2掌握计算机相关基础知识，能将其用于物流信息系统构建、系统仿真及复杂算法求解。 2.2 Be master of the computational techniques and relevant knowledge, be able to design logistics information systems, simulate systems and implement complex algorithms. 2.3能够应用运筹学以及工程基础和物流工程管理专业知识，开展复杂物流系统规划、设计及运营管理的工程实践。 2.3 Be master of the operation research, engineering fundamentals and logistics engineering management professional knowledge, be able to conduct and function the engineering practice of complex logistics system planning, design and operation management.</p> |
| <p>3. 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复杂物流系统工程问题。 3. Problem Analysis: Be able to identify, express and analyze complex logistics system engineering problems by applying the basic principles of mathematics, natural science and engineering science.</p> | <p>3.1能够应用数学、自然科学和工程科学的基本原理，识别、表达复杂物流系统的工程问题。 3.1 Be able to identify and express the engineering problems of complex logistics system by applying the basic principles of mathematics, natural science and engineering science. 3.2能够通过有关同类研究成果综述，分析复杂物流系统工程问题的核心环节及影响因素。 3.2 Be able to analyze the core links and influencing factors of complex logistics system engineering problems by virtue of the summary of similar research results. 3.3能够运用数学、自然科学和工程科学的技术与方法，提出综合改善系统、提高服务效能的技术路线。 3.3 Be able to put forward the technical route of comprehensive improvement of system and service efficiency by using the technology and method of mathematics, natural science and engineering science.</p> |
| <p>4.设计/开发解决方案：能够设计针对复杂物流系统工程问题的解决方案，能够在规划、设计、管理环节中体现创新意识。 4. Designing & Developing Solutions: Be able to design solutions to complex logistics system engineering problems and to embody innovative consciousness in planning, design and management.</p> | <p>4.1能够明确和筛选完成工程任务所需的方法和技术，并熟悉其优缺点。 4.1 Be able to identify and screen the methods and techniques required to complete engineering tasks, and be familiar with their advantages and disadvantages. 4.2能够针对复杂物流系统工程问题设计相应的解决方案,并用图纸和设计报告等形式呈现设计成果。 4.2 Be able to design solutions to complex logistics system engineering problems and present results in the form of drawings and reports. 4.3具备创新思维，能够通过知识融合，运用交叉学科知识分析方案实施的可行性。 4.3 Have innovative thinking and ability to analysis the feasibility of the program through the integration of knowledge and cross-disciplinary knowledge.</p> |
| <p>5. 研究：能够基于科学原理并采用科学方法对复杂物流系统工程问题进行研究，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. Research: Be able to study complex logistic system engineering problems based on scientific principles and scientific methods, including designing experiments, analyzing and interpreting data, and obtaining reasonable and valid conclusions through information synthesis.</p> | <p>5.1针对运输、仓储、配送等作业组织的复杂性、时效性及随机性特点，选择研究方法，设计可行的实验方案。 5.1 Select research methods and design feasible experimental schemes, for the complexity, timeliness and randomness of transportation, warehousing, distribution and other operational organizations. 5.2能正确收集和整理实验数据，用设备及软件进行数据处理和分析，并获取合理有效的结论。 5.2 Be able to collect and organize experimental data correctly, use equipment and software for data processing and analysis, and obtain reasonable and effective conclusions. 5.3能够根据实验结论，分析出结论所展现出的科学含义。 5.3 Be able to analyze the scientific meaning according to the experimental conclusions.</p> |
| <p>6.使用现代工具：能够针对复杂物流系统工程问题，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，包括对复杂工程问题的预测与模拟，并能够理解其局限性。 6. Using Advanced Tools: Be able to develop, select and use appropriate technology, resources, modern</p> | <p>6.1 能够识别复杂物流系统工程的技术特征、资源与影响因素，面向实际问题进行针对性的分析。 6.1 Be able to identify the technical characteristics, resources and influencing factors of complex logistics system engineering, and conduct targeted analysis for practical problems. 6.2能够运用现代工程工具和信息技术工具，进行针对本专业复杂工程问题解决的计算、设计与系统开发。 6.2 Be able to use modern engineering tools and information technology tools to carry out calculation, design and system development for complex engineering problems solving in this major.</p> |

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| <p>engineering tools and information technology tools for complex logistics system engineering problems, including prediction and simulation of complex engineering problems, and understand their limitations.</p> | <p>6.3能够选择现代工程工具和信息技术工具进行物流工程的实际问题的预测与模拟，并理解其局限性。 6.3 Be able to select modern engineering tools and information technology tools for the prediction and simulation of practical problems in logistics engineering and understand their limitations.</p> |
| <p>7.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. Engineering And Society: Be able to conduct a rational analysis based on engineering-related background knowledge, evaluate the impact of engineering problem solutions on society, health, safety, law, and culture, and understand the responsibilities.</p> | <p>7.1具有系统的物流工程实践学习经历，能够基于工程相关背景合理分析不同工作环境、工作条件对物流系统实际解决方案的适应能力。 7.1 Have systematic logistics engineering practice learning experience. Be able to reasonably analyze the adaptability of different working environments and working conditions to the actual solution of the logistics system based on the relevant background of the project. 7.2运用哲学、社会学、心理学、法律等基础知识，评价复杂物流系统工程问题解决方案及实践对社会、健康、安全、法律以及文化的影响。 7.2 Be able to apply basic knowledge such as philosophy, sociology, psychology, and law to evaluate the impact of complex logistics system engineering problem solutions. Have positive impact on the society, health, safety, law, and culture. 7.3在分析和评价过程中，理解应承担的责任。 7.3 Understand the responsibilities in the analysis and evaluation process.</p> |
| <p>8.环境和可持续发展：能够理解和评价针对复杂物流系统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. Environment And Sustainable Development: Understand and evaluate the impact of professional engineering practices for complex logistics system engineering problems on environmental and social sustainability.</p> | <p>8.1理解环境保护和可持续发展对物流系统的要求。 8.1 Understand the requirements of the logistics system for environmental protection and sustainable development. 8.2了解物流领域在环境保护和可持续发展方面的方针、政策和法律、法规。 8.2 Understand the guidelines, policies, laws and regulations on environmental protection and sustainable development in the field of logistics. 8.3能够从可持续发展战略的层面评价复杂物流系统工程项目及实施方案对城市发展、生态环境等方面的影响。 8.3 Be able to evaluate the impact of complex logistics system engineering projects and implementation plans on urban development and ecological environment from the perspective of sustainable development strategies.</p> |
| <p>9. 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. Professional Ethics: Have spirit and literacy in humanities and social science, and social responsibility. Understand and follow engineering code of conduct for professional ethics and criteria in engineering practice. Discharge the responsibilities.</p> | <p>9.1具有健康人格、道德修养、思辨能力、社会责任和科学精神。 9.1 Have healthy personality, moral cultivation, speculative ability, social responsibility and scientific spirit. 9.2具有工程师职业道德、操守和素质，并清晰了解其行为边界。 9.2 Have professional ethics, integrity and quality of engineers. Understand the behavior boundaries of engineers clearly. 9.3具有行业发展和推动社会进步的责任感，并在实践中自觉履行责任。 9.3 Have sense of responsibility for industry development and social progress. Discharge the responsibilities consciously in practice.</p> |
| <p>10.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. Individual And Team: Be able to play the roles of individual, team member and leader in a multidisciplinary team.</p> | <p>10.1能够独立完成团队分配的任务，胜任团队成员的角色与责任，控制自我并了解、理解他人需求和意愿。 10.1 Be able to accomplish tasks assigned by the team independently, be competent for the roles and responsibilities of team members, self-control and comprehend and understand the needs and wishes of others. 10.2具有与相关专业的工程师与技术人员工作与合作的能力。 10.2 Be able to work and cooperate with engineers and technicians in related fields. 10.3能够从系统整体优化的角度主导复杂物流系统工程任务。 10.3 Be able to lead the task of complex logistics system engineering from the perspective of overall system optimization.</p> |
| <p>11. 沟通：能够就复杂物流系统工程问题与业界同行及社会公众进行有效沟通和交流，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. Communication: Be able to communicate effectively with industry</p> | <p>11.1能够熟练运用文字、图表、报告及多媒体等表达工具。 11.1 Be proficient in expression tools such as text, graphics, reports, and multimedia. 11.2能够使用技术语言进行沟通与表达，准确阐述观点，回应质疑，能够按照技术标准或规范编制工程文档。 11.2 Be able to communicate and express in technical language, explain the point of view, respond to question and have the ability to prepare engineering documents in accordance with technical standards or specifications.</p> |

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| colleagues and the society on complex logistics system engineering issues. Have a certain international perspective and ability to communicate in a cross-cultural background. | 11.3熟练掌握一门外语，具备一定的国际视野，了解物流行业的国际前沿，能够与跨文化背景的人进行沟通和交流。 11.3 Be familiar with a foreign language, have a certain international perspective, understand the international frontiers of the logistics industry, have the ability to communicate with people across cultural backgrounds. |
| 12.项目管理：理解并掌握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. Project Management: Understand and master the principle of engineering management and method of economic decision, apply them to resolve multidisciplinary problems. | 12.1 掌握工程项目或产品设计和实施的全周期、全流程进行的过程管理和经济决策的方法。 12.1 Be master of the method of engineering management and economic decision during the whole cycle and process of the designing and implementation of the engineering project or product. |
| | 12.2了解复杂物流系统工程及产品全周期、全流程的成本构成，理解其中涉及的工程管理与经济决策问题。 12.2 Comprehend the cost structure of the complex logistic system engineering and product during the whole cycle and process, and understand the related problems of engineering management and economic decision. |
| | 12.3能在多学科环境下(包括模拟环境)，在设计开发解决方案的过程中，运用工程管理与经济决策方法。 12.3 Be able to apply the method of engineering management and economic decision during the process of the solution designing and development under the multidisciplinary environment, including simulation environment. |
| 13.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。 13. Lifelong Learning: Have the consciousness of self-learning and lifelong learning, have the ability to continuously learn and adapt to development. | 13.1能够认识到自主和终身学习的必要性。 13.1 Be able to recognize the need for self-learning and lifelong learning. |
| | 13.2掌握一定的学习方法和技巧，包括对技术问题的理解能力，归纳总结的能力和提出问题的能力等。 13.2 Be master of certain learning methods and skills, including the ability to understand technical issues, to summarize and to ask questions. |
| | 13.3能够适应不同工作环境和条件，具有创新、探索和终身学习的意识，掌握自主学习方法和途径。 13.3 Be able to adapt to different working environments and working conditions, have the awareness of innovation, exploration and lifelong learning, and master the methods and ways of self-learning. |

三、学分要求 Credits Requirements

预修 10 学分以上高等数学（BI、BII），在此基础上修学本专业的 51.5 学分核心课程，其中包括完成 1.5 学分认识实习环节和答辩通过 8 学分毕业设计（论文）环节。

Prepare 10 credits or above for Calculus (BI, BII), and then complete the 51.5-credit core course; complete 1.5-credit Cognition Practice, and pass the 8-credit graduation design (thesis) defense.

四、学位 Degree

工学学士 Bachelor of Engineering

五、课程设置 Course Programs

| 课程类型 Course Type | 课程名称 Course Name | 课程性质 Nature of Course | 学分 Credits | 开课学期 Semester | 开课学院 School | 备注 Notes |
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| 专业基础课 Professional Foundational Courses | 运筹学 I Operation Research I | 必修 Compulsory | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |

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| 专业基础课 Professional Foundational Courses | 运筹学 II Operation Research II | 必修 Compulsory | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 运筹学实验 B Operation Research Experiments B | 必修 Compulsory | 1 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 系统工程（物流） System Engineering (Logistics) | 必修 Compulsory | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 供应链管理 B Supply Chain Management B | 必修 Compulsory | 3 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 货物运输组织 A Freight Transit Organization A | 必修 Compulsory | 3 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| 专业核心课程 Specialized Core Course | 绿色物流技术 Green Logistics Technology | 必修 Compulsory | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 生产计划与控制 Production Planning and Control | 必修 Compulsory | 3 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 物流设备与应用 Logistics Equipment and Application | 必修 Compulsory | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 物流信息技术 Logistics Information Technology | 必修 Compulsory | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 物流系统仿真 Logistics System Simulation | 必修 Compulsory | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 物流系统规划 Logistics System Planning | 必修 Compulsory | 3 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 智能仓储 Intelligent Warehousing | 必修 Compulsory | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 智慧物流技术与方法 Intelligent Logistics Technology and Method | 必修 Compulsory | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |

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| 专业限修课程 Specialized Restricted Courses | 服务运作管理 Service Operation Management | 限修 Distributional Elective | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | 限修 2 学分 Distributional Elective 2 credits |
| | 城市规划基础 Urban Planning Fundamental | | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 线性优化 Linear Optimization | | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 无人运输技术 Unmanned transportation technology | 限修 Distributional Elective | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | 限修 2 学分 Distributional Elective 2 credits |
| | 冷链物流 Cold-chain logistics | | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 采购与供应管理 Procurement and Supply Management | | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 国际物流 International Logistics | | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 港口规划与布置 Port Planning and Layout | | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 航空港与航空物流规划 Airport and Air Logistics Planning | | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 铁路物流中心规划 Railway Logistics Center Planning | | 2 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| 基本技能训 练、实习实 训、综合课程 设计、社会与 文化素质实 践、毕业实习 与毕业设计 | 物流设备与应用实验 Logistics Equipment and Application Experiment | 必修 Compulsory | 1 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| | 物流信息技术实验 Logistics Information Technology Experiment | 必修 Compulsory | 1 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 物流系统仿真实验 Logistics System Simulation Experiment | 必修 Compulsory | 1 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |

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| 基本技能训练、实习实训、综合课程设计、社会与文化素质实践、毕业实习与毕业设计 Basic Skills Training, Practical Training, Integrated Curriculum Design, Social and Cultural Quality Practice, Graduation Internship and Graduation Design | 物流信息系统课程设计 Design of Logistics Information System | 选修 Free Elective | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | 选修 4 学分 Free Elective 4 credits |
| | 物流解决方案课程设计 Logistics Solution Design | | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 物流设备课程设计 Logistics Equipment Design | | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 仓库布局课程设计 Warehouse Layout Design | | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 物流规划课程设计 Design of Logistics Planning | | 2 | 秋季学期 Fall semester | 交运 School of Transportation and Logistics | |
| | 认识实习（物流） Cognition Practice (Logistics) | 必修 Compulsory | 1.5 | 短 2 学期 Short semester 2 | 交运 School of Transportation and Logistics | |
| | 毕业设计（论文） Graduation Dissertation | 必修 Compulsory | 8 | 春季学期 Spring semester | 交运 School of Transportation and Logistics | |
| 总学分 Total Credits | | | 51.5 | | | |