动力工程及工程热物理硕士研究生留学生培养方案

Master Program of

Power Engineering and Engineering Thermophysics

for International Students

专业代码（0807）

Code of the Specialty：0807

**一、学科简介**

动力工程及工程热物理一级学科作为我校最早成立、长期重点建设的学科之一, 已经历了 40年的发展和积累，下属化工过程机械学科2000年被评为中国石化总公 司重点学科，2006年被评为江苏省“十一五”重点学科，2011年“动力工程及工程 热物理”学科被评为省“十二五”重点（培育）学科，于2016年以良好成绩通过验 收，并再次获批省“十三五”重点（培育）学科。

本授权点依托江苏省政府与中石化、中石油和中海油共建常州大学平台以及强 大的江苏省装备制造产业，通过“多元化协同培养机制”，聚集各方资源，着力内 涵建设，学科己逐步成长为注重国际化、突出学科交叉、贴近石油与化工行业和地 方产业发展的特色重点学科。学科队伍年龄、职称、知识结构合理，其中教授13人， 副教授16人，博士 26人，博士比例达到60%, 45岁以下高级职称教师达63%以上, 近年来学科取得了突出的研究成果，分获国家技术发明二等奖、国家科技进步二等 奖各1项，省部级科技奖励近20项。

学科与国民经济需求紧密关联，在“中国制造2025”及大力提倡能源高效利用 的背景下，主动融入石油石化行业及江苏乃至长三角地区的经济发展，为社会输送 优秀的高级研究及应用型人才，并为石油石化行业和地方产业提供有力的技术成果 支撑。

1. **Brief Introduction to the Discipline**

Power Engineering and Engineering Thermophysics is a first-level discipline master degree program and is one of the key disciplines with the longest history in Changzhou University. Over the past 40 years, the second-level discipline of Chemical Process Machinery was awarded as a key discipline in SINOPEC in 2000 and a key discipline in the 11th Five Year Plan of Jiangsu Province in 2006; the first-level discipline of Power Engineering and Engineering Thermophysics was awarded as a key discipline (cultivation) in the 12th Five Year Plan of Jiangsu Province in 2011 was awarded as a key discipline (cultivation) in the 13th Five Year Plan of Jiangsu Province in 2016.

Changzhou University is jointly supported by Jiangsu provincial government, SINOPEC, PetroChina and CNOOC. The training Program of International Postgraduates in Changzhou University takes the advantage of strong equipment manufacturing industry in Jiangsu Province, gathers the resources from all sides through the Diversified and Synergetic Training Mechanism to focus on the connotation construction and has grown to be a key discipline with the characteristics of international-orientation, inter-discipline and close-linkage with the local petroleum and petrochemical industries as well as their development.

The discipline of Power Engineering and Engineering Thermophysics shares a group of supervisors, including 13 professors and 16 associate professors. 60% of the group members have doctor degree and 63% of professors and associate professors are at ages under 45-year old. The group has made remarkable achievements in recent years, and was awarded a Second Prize of National Award for Technological Invention and a Second Prize of National Award for Science and Technology Progress as well as nearly 20 awards for science and technology progress at the provincial and ministerial levels.

Closely linked with the demand of national economy, the discipline of Power Engineering and Engineering Thermophysics actively merges with the development of petroleum and petrochemical industries and the economic development of Jiangsu province and the Yangtze River Delta region, under the backgrounds of “Made in China 2025” and vigorous promotion of high-efficient utilization of energy in China. The discipline of Power Engineering and Engineering Thermophysics has trained excellent scientific-research and/or application orientated graduates and has supported the development of petroleum and petrochemical industries as well the local economy with fruitful technical achievements.

**二、培养目标**

培养适应新时代中国特色社会主义建设需要的，具有正确的人生观、健康的体 魄和心理，严谨求实的科学作风；能熟练掌握有关动力工程及工程热物理基本原理 和基本理论，了解本领域国内外研究状况以及新的发展动态；具有良好的计算机和 现代实验技能，能熟练地阅读动力工程及工程热物理专业外文资料，具有良好的科 技论文写作能力，具有独立开展科学研究和技术研发的能力，具备独立进行研究开 发和工程设计等方面能力的高级创新型研究人才。

**2. Training Objectives**

Cultivate graduates with correct view of life, physical and mental health and rigorous and realistic style to meet the demands of development of Socialism with Chinese Characteristics for a New Era. Cultivate graduates with keen acknowledge of basic principles and theories on Power Engineering and Engineering Thermophysics as well as the domestic and international development trends of science and technology in research fields. Cultivate graduates with good technic skills of computer and modern experiments, and with abilities to read smoothly the information on Power Engineering and Engineering Thermophysics in foreign languages. Cultivate graduates with the potential to conduct scientific and technologic research independently, and with the innovation talents in the aspects of research and development as well as engineering design.

**三、学习年限**

学术学位硕士研究生的学制为3年。如确有必要可申请延长学习时间，但最长 一般不超过5年，逾期作自动退学处理。

**3. Duration of Master Program**

The Education system for international postgraduates in Power Engineering and Engineering Thermophysics is 3 years, and the duration of the program is generally no more than 5 years, if the graduation is delayed in necessary. Longer than the duration of the Program, the students will be dealt with voluntary withdrawal.

1. **主要研究方向**

（1）高效与洁净燃烧新技术

（2）气体污染物排放控制及有机和固体废弃物综合处理技术

（3）能源高效综合利用及储能技术与装备

（4）新型强化传热、隔热技术及新材料

（5）新能源开发利用及多能互补技术

**4. Main Research Direction**

（1）New technologies for efficient and clean combustion

（2）Emission control of gas pollutants and integrated treatment of organic and solid wastes

（3）Energy efficient and comprehensive utilization and energy storage technology and equipment

（4）New enhanced heat transfer, heat insulation technology and new materials

（5）New energy development and utilization and multi-energy complementary technology

1. **课程设置及学分要求**

**5. Set of curriculum of requirements of credits**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 类别  Category | 课程名称  Name of curriculum | 课程编号  Number of curriculum | 学时  Hours | 学分  credits | 开课学期  Semester | 开课学院  School | 授课方式  Way of Teaching | 考试方式  Way of Tests | 备注  Notes |
| 公共课程\*  General  Courses | 汉语综合1  Comprehensive Chinese 1 | LS23A2001 |  |  |  |  |  |  | 14学分 |
| 汉语综合2  Comprehensive Chinese 2 | LS23A2002 |  |  |  |  |  |  |
| 汉语听说  Listening and Speaking of Chinese | LS23A2003 |  |  |  |  |  |  |
| 汉语阅读  Chinese Reading | LS23A2004 |  |  |  |  |  |  |
| 中国概况  Introduction to China | LS23A2005 |  |  |  |  |  |  |
| 中国文化  Chinese Culture | LS23A2006 |  |  |  |  |  |  |
| 学科必修课程  Obligatory  Courses | 应用数理统计  Applied Mathematical Statistics | LS04B2001 | 48 | 3 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考试  Exams | 12学分 |
| 数值分析  Numerical Analysis | LS04B2002 | 48 | 3 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考试  Exams |
| 高等流体力学  Advanced Fluid Mechanics | LS04B2003 | 48 | 3 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考试  Exams |
| 高等传热学  Advanced Heat Transfer Theory | LS04B2005 | 48 | 3 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考试  Exams |
| 高等工程热力学  Advanced Engineering Thermodynamics | LS04B2006 | 48 | 3 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考试  Exams |
| 专业方向选修课程  Selective Courses | 计算流体力学  Computational Fluid Dynamics | LS04C2005 | 48 | 3 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests | ≥12学分 |
| 两相流体力学  Two-phase Fluid Dynamics | LS04C2014 | 32 | 2 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |
| 流体工程仿真理论与实践  Fluid Engineering Simulation Theory and Practice | LS04C2015 | 32 | 2 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |
| 工程热物理研究进展  Recent Progress in Engineering Thermophysics | LS04C2016 | 32 | 2 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |
| 高等燃烧学  Advanced Combustion Science | LS04C2017 | 32 | 2 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |
| 数值传热学  Numerical Heat Transfer | LS04C2018 | 32 | 2 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |
| 热力系统与设备优化  Optimization of Thermal Systems and Devices | LS04C2019 | 32 | 2 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |
| 文献检索  Literature Retrieval | LS04C2011 | 16 | 1 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |
| 科技论文写作  Academic Thesis Writing | LS04C2012 | 16 | 1 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |
| 知识产权  (Laws of) Intellectual Property Right | LS04C2013 | 16 | 1 | 1-2 | 石工学院  School of Petroleum and Natural Gas Engineering | 讲授  Class Teaching | 考查  Tests |

\*注：

1.提前达到国家规定的《国际汉语能力标准》毕业等级要求的研究生可以申请免修后续的汉语类课程，经过开课学院审核批准免修的学分计入已修学分。中国文化类课程不得免修。

2．毕业时，以中文为专业教学语言的学科、专业中，来华留学生研究生的中文能力应至少达到《国际汉语能力标注》五级水平。以外语为专业教学语言的学科、专业中，来华留学研究生的中文能力应至少达到《国际汉语能力标注》三级水平。

Notes:

1. Postgraduates who meet the graduation requirements of “International Chinese Language Competence Standard” stipulated by the State in advance may apply for exempting the following Chinese courses, and the exempted credits shall be credited to the total credits of courses taken after the examination and approval of the course-opening College. Chinese culture courses are compulsory.

2.Upon graduation, international graduate students of Chinese-taught majors should reach at least level 5 as required by “Chinese Language Proficiency Scales for Speakers of Other Languages”. For international graduate students of English-taught majors-at least level 3.

**六、学位论文工作**

**6. Dissertation Work**

参照《常州大学学术学位硕士研究生培养方案（总则）》实施。

Refer to“Academic Degree Master Programs of Changzhou University (General Provisions)”.