

# 化学学术型硕士研究生培养方案

(学科代码: 0703, 授理学硕士学位)

## Education Plan for Academic Graduate in chemistry

(Discipline Code:0703,Award Master Degree of Science)

### 一、培养目标

#### I Objectives

1. 掌握马列主义基本理论、树立科学的世界观, 坚持党的基本路线, 热爱祖国; 遵纪守法, 品行端正; 诚实守信, 学风严谨, 团结协作, 具有良好的科研道德和敬业精神。

2. 掌握化学学科领域坚实的基础理论和系统的专业知识, 具备基本化学实验技能, 了解学科的前沿动态。可胜任本学科领域较高层次的教学、科研、工程技术工作与科技管理工作。

3. 掌握一门外国语, 能熟练进行专业阅读和写作。

4. 具有健康的体质和良好的心理素质。

1. Master the basic theory of Marxism and Leninism, establish a scientific view of the world, adhere to the basic line of the Chinese Communist Party, love for the motherland; law-abiding, good conduct; honest and trustworthy, rigorous style of study, solidarity and cooperation, with good research ethics and professionalism.

2. Master the basic theory and comprehensive expertise in the discipline of chemistry, have basic chemistry experiment skills and keep up with the research frontier of chemistry. Capable of engaging in teaching, scientific research, engineering and technology management work.

3. Master a foreign language, capable of reading and writing about scientific issues.

4. Have a healthy body and good psychological quality.

### 二、研究方向

#### II Disciplinary Research Areas

1. 无机化学

2. 物理化学

3. 有机化学

4. 高分子化学与物理

5. 分析化学

1. Inorganic chemistry

2. Physical chemistry

3. Organic chemistry

4. Polymer chemistry and physics

5. Analytical chemistry

### 三、学制、学习年限及学分要求

#### III Educational System and Years of Study

硕士生学制为3年, 学习年限一般为3年, 最长不超过5年。总学分要求不低于27学分, 其中课程总学分不低于22学分, 学位课程学分不低于17学分, 选修课程学分不低于5学分, 必修环节5学分。

The program complete time for Master degree is normally 3 years, and can be extended to 5 years at most. The total credits required is no less than 27, among which the total credits for courses is no less than 22, degree course credit is no less than 17, elective course credit is no less than 5, and compulsory part is 5 credits.

#### 四、课程设置

#### IV Curriculum System and Credit Requirements

课程类别 Course Category	课程编号 Course No.	课程名称 Course Name	学时 Hour	学分 Credit	开课学期 Semester	开课单位 School	备注 Remark
公共学位课 Common Degree Course	01821031-040	第一外国语(上、下)(英、日、法、德、俄语) The First Foreign Language (2 volumes) English, Japanese, Russian, German and Russian)	72	4	1、2	外国语学院 Foreign Language Institute	必选 Required
	02121102	中国特色社会主义理论与实践 Theory and Practice of Socialism with Chinese Characteristics	36	2	1	马克思主义学院 Marxism Institute	
	02121007	自然辩证法概论 Probability of Dialectics of Nature	18	1	1	马克思主义学院 Marxism Institut	
专业学位课 Professional degree Course	01521321	高等无机化学 Advanced Inorganic Chemistry	36	2	1	化生学院 School of Chemistry, Chemical Engineering and Life Sciences	必选 Required
	01521322	高等有机化学 Advanced Organic Chemistry	36	2	1		
	01521307	高等物理化学 Advanced Physical Chemistry	36	2	2		
	01521308	高等分析化学 Advanced Analytical Chemistry	36	2	2		
	01521304	化学信息学 Chemoinformatics	36	2	1		
选修课 Elective	01522322	精细有机合成 Fine Organic Synthesis	36	2	1	化生学院 School of Chemistry, Chemical Engineering and Life Sciences	
	01522307	量子化学 Quantum Chemistry	54	3	2		
	01522323	精细无机合成 Refined Inorganic Synthesis	36	2	2		
	01522310	表面与界面化学 Surface and Interface Chemistry	36	2	3		
	01522302	计算化学 Computational Chemistry	36	2	1		
	01522308	材料化学导论 Introduction to Materials Chemistry	36	2	1		
	01522309	纳米材料合成表征 Synthesis and characterization of nanomaterials	36	2	2		
	01562308	化学前沿与进展 Progress of Chemistry	18	1	1		必选 Required
	01522324	化学专业英语 English for Chemistry	18	1	2		必选 Required
	01522319	高分子合成化学 Synthetic Polymer Chemistry	36	2	2		

课程类别 Course Category	课程编号 Course No.	课程名称 Course Name	学时 Hour	学分 Credit	开课学期 Semester	开课单位 School	备注 Remark
	01562311	电化学原理与方法 Electrochemical Principle and Method	36	2	1		
	01522321	能源环境电化学 Energy & Environmental Electrochemistry	36	2	2		
	01522325	现代分析与测试技术 Contemporary Analytical and Characterization Techniques	54	3	2		
跨学科选修课 Interdisciplinary Elective		具体课程见原则意见 Specific courses in the principles	18	1	1-2	研究生院 Graduate School	至少选修一门 At least choose one course
必修环节 Compulsory courses	01524301	实践环节		3	1-3	化生学院	
	01524002	选题报告及中期考核		1	3-5	化生学院	
	01524003	学术活动	≥5 次	1	1-5	化生学院	

## 五、必修环节

### V Compulsory Courses

①实践环节 3 学分。学生完成专业实践、社会实践、创新创业活动、竞赛、高水平论文、获奖成果、获得专利之一记 1 学分，在职研究生可免修该环节，但不记学分，所缺学分必须通过选修课程补齐；模拟完成一篇省（市）级及以上自然(社会)科学基金等纵向项目的申请书及 20 分钟汇报 PPT，经指导教师检查、评阅合格者记 2 学分。

②学术活动 1 学分。为了促使研究生能主动关心和了解国内外本学科前沿的发展动态，开阔视野，启发创造力，要求每个硕士研究生应参加学术活动不少于 5 次，且每次参加学术活动必须写出 500 字以上的心得。经指导教师（小组）检查、审核，完成者在必修环节记 1 个学分。

③选题报告及中期考核 1 学分。硕士生在导师指导下选定论文题目后，进行文献调研，在了解学科发展前沿的基础上写出文献综述。要求查阅本学科国内外文献应在 40 篇以上，其中外文文献不少于三分之一。并就课题的科学依据、目的、意义、国内外研究发展现状、研究内容、实验方案论证及预期结果写成书面开题报告，在第三学期中期，由导师统一组织进行硕士生开题报告，答辩审核通过者直接进入学位论文阶段。对不符合要求的开题报告，导师提出改进措施后，硕士生应提出改进方案，经认真修改，直至符合开题要求，方可开始学位论文工作。选题报告通过后记 1 个必修环节学分。硕士研究生必须参加学校的中期考核。中期考核的内容包括课程学习的学分和成绩、思想表现和参加学术活动情况等，考核时间安排在第 3 学期进行。学位课程总平均成绩应达到 75 分以上。

①Three credits for internship and practical training. Students, who complete one of the following activities like professional practice, social practice, innovation and entrepreneurial activities, competitions and high-level papers, awarding achievements, and getting a patent, will be rewarded with 1 credit. On-job postgraduates can be exempted from the requirement, but they will not get credits, the missing credits must be filled by elective courses; complete a simulation application form and 20 minutes presentation on provincial (city) level or natural (social) science funds project. After inspected and reviewed by the supervisor (Group), those who passed will get 2 credits.

②One credit for academic activities. In order to encourage candidates to take concern and understand the state of art at home and abroad, broaden their horizons and inspire their creativity, each candidate should make public academic report at least five times, attend academic reports at least 10 times, and write 500 words or more each time after participating in academic activities. After examination by the supervisor (Group), those who complete it will get 1 credit of compulsory courses.

③Topic report and mid-term examination, 1 credit. After the confirmation of the title of the thesis, the graduate students are required to write a literature review on the frontiers of the development of their research topics. The review should have at least 40 literatures, of which foreign literatures should be no less than 1/3 of the total. They need to write a formal proposal on the scientific basis, research purpose, and significance of the subject. The proposal also includes the research status at home and abroad, research content, experimental scheme demonstration and expected result. In the middle of third term, topic report will be organized by the mentors. Graduate students who pass the topic report exam will enter the stage of thesis preparation. For those who fail the topic report exam, theirmentorneedto provide corresponding measures and the graduate students are required to make proper improvement until it is qualified. Graduate students are required to take part in the mid-term examination of the university which includes the credits and grades of the courses, thought performance and record for participation in academic activities, etc. The examination is scheduled in the third semester. The total average score of the degree courses should be higher than 75.

## 六、科研与论文

### VI Scientific Research and Dissertation

学位论文是研究生综合运用所学专业知识，接受科研能力基本训练和掌握科学研究方法的最重要环节，是研究生学术水平和科研创新能力的综合体现，对提高研究生培养质量至关重要。研究生在学位论文答辩之前，必须在本学科或相关学科的国内外学术刊物上以第一作者或第二作者（导师为第一作者），且以武汉理工大学的名义公开发表至少 1 篇与学位论文内容有关的学术论文，这些学术刊物必须在研究生院认定的《申请硕士学位发表学术论文期刊目录》所包括的范围内。科研与论文工作的主要环节如下：

#### 1. 论文内容

(1) 综述课题的理论意义和应用价值，国内外研究动态，需要解决的问题和途径以及本人做出的贡献。

(2) 说明采用的实验方法、试验装置和计算方法，并对整理和处理的数据进行理论分析与讨论。

(3) 对所得结果进行概括和总结，并提出进一步研究的看法和建议。

(4) 给出所有的公式、计算程序说明、列出必要的原始数据以及所引用的文献资料。

(5) 引用别人的科研成果必须明确指出，与别人合作的部分应说明本人的具体工作。

#### 2. 基本要求

(1) 硕士生应首先在导师的指导下做好选题工作，选题应在本学科或交叉学科范围内，选择在社会发展和经济建设中的科学研究或工程技术问题，或在学术上有一定理论价值的课题。

(2) 从事学位论文研究的时间不少于 1 年。

(3) 学位论文必须在导师的指导下由硕士生独立完成。

(4) 学位论文要求概念清楚、立论正确、分析严谨、计算精确、数据可靠、行文通顺、图表清晰、层次分明、格式规范，能体现硕士生坚实的理论基础、较强的独立工作能力和优良的学风。

(5) 论文工作初期作开题报告。论文进行过程中，硕士生应至少向导师组作一次论文中期进展汇报，接受导师组对论文工作的阶段性检查，其中论文字数不少于 4 万字。

(6) 学位论文具体格式必须按《武汉理工大学研究生学位论文格式的统一要求》进行。

(7) 学位论文的评审、答辩和学位申请与授予等工作按《中华人民共和国学位条例暂行实施办法》和《武汉理工大学学位授予工作细则》的规定进行。

(8) 硕士研究生申请学位论文必须通过“学位论文学术不端行为检测系统(TMLC2)”检测，达到校学位评定委员会对学位论文的有关要求方可答辩。

Degree thesis is the most important part for the graduate students to comprehensively use their professional knowledge, get training of scientific research ability and master the scientific research method. It is a comprehensive reflection of their academic level and innovation ability in scientific research. Degree thesis is very important for the training quality of graduate students. Before degree thesis defense, graduate students need to publish at least one research paper related to their thesis in domestic or international

academic journals in the discipline of chemistry or related disciplines. The graduate students need to be the first author of the paper, or second author of the paper if the mentor is the first author. Wuhan University of Technology (WHUT) needs to be the first affiliation of the research paper. The academic journals must be in the list of "Academic Periodicals Catalogue for Applying for a Master's degree" which is identified by Graduate Institute of WHUT. The major aspects of scientific research and thesis work includes following aspects.

#### Thesis Content

(1) Summarize the theoretical significance and application value of the research topic, the domestic and international research trends, the problems and ways to solve them, and the contributions by the author.

(2) Demonstrate the experimental method, experimental devices and calculation methods used. Analyze and discuss the data collected and processed.

(3) Summarize and conclude on the results and put forward the opinions and suggestions for further research.

(4) List all the formulas, explanations for calculation procedures, necessary raw data, as well as all the references cited.

(5) Reference to other people's research results must be made clear; clearly indicate author's own contribution in the part of the thesis which is cooperated with others.

#### 2. Basic requirement

(1) Graduate students should carefully select research topic under the guidance of their mentor. Topics need to be within the chemistry discipline or interdisciplinary scope related to chemistry. Topics should be related to scientific problems or engineering technology problems met in social development and economic construction, or have certain theoretical value in academic research.

(2) Spend no less than 1 year in the thesis research work.

(3) The thesis must be completed independently by the graduate students under the guidance of their mentors.

(4) The thesis requires clear concept, correct argument, rigorous analysis, accurate calculation, reliable data, fluent writing, clear diagrams, structured and standardized format, which reflects the solid theoretical foundation, strong ability to work independently and excellent style of study of graduate students.

(5) Give topic report at the beginning of thesis work. During the whole thesis research work, graduate students need to give at least one interim progress report to the mentor group. The mentor group will evaluate the quality of it. The thesis should have at least 40,000 words in total.

(6) The format of the thesis must agree with "The requirements of the format of graduate degree thesis of Wuhan University of Technology".

(7) The examination and evaluation of the thesis, the thesis defense, the application and award of the degree and so on shall be carried out according to "Provisional Measures for the Implementation of the Regulations of the People's Republic of China on Academic Degrees" and "The Detailed Operating Rules for the Degree-awarding Work of the Wuhan University of Technology".

(8) Master's degree thesis must pass "academic misconduct detection system (TMLC2)" testing, and meet the relevant requirements for it set by the degree evaluation committee of WHUT before thesis defense.

## 七、培养方式与方法

### VII Cultivation Mode and Method

硕士研究生的培养应坚持导师（导师小组）负责制或系（所、教研室）集体培养相结合的方式，充分发挥指导教师的主导作用和研究生的创造能力，调动导师（导师小组）和集体的积极性，从政治思想和业务学习两方面引导研究生全面发展。具体方式如下：

1、坚持政治理论学习与经常性的政治、纪律和思想教育相结合。在认真学好政治理论课的同时，要求研究生积极参加政治学习、公益劳动等集体活动。

2、坚持课堂讲授和自学讨论相结合的教学方式，培养独立分析问题和解决实际问题的能力。广泛、灵活地采用案例式教学、专题讲座式教学、辩论式教学、研究式教学、启发式、讨论班、学术沙龙以及学术报告与学术讲座等多种教学方式。

3、课程学习和科研论文工作并重的原则。既要深入掌握本门学科坚实的基础理论和系统的专门知识，又要培养具有科学研究或独立担负专门技术工作的能力。

4、研究生培养方式应灵活多样，强调在培养过程中发挥研究生的主动性和自觉性。

The training of graduate students should adhere to Mentor Responsibility System or collective training

system led by the department. It should give full play to the leading role of mentors and the creativity of graduate students. It should mobilize the enthusiasm of the mentor or tutor group. Graduate students should be guided by political ideology and professional learning to get full development during training process. The detail methods for training are listed below.

1. Insist on the combination of regular political theory study and everyday education on politics, discipline and ideology. Graduate students are required to participate actively in political study, public welfare work and other collective activities along with the study of political theory courses.

2. Adhere to classroom-teaching method as well as self-study and discuss method, so as to improve the abilities of graduate students to analyze and solve problems independently. A variety of teaching methods are applied which include case study style, thematic lecture style, debate style, research style, heuristic style, discussion class style, academic salon and report style.

3. Adhere to the principle of equal emphasis on course study and scientific research work. Graduate students are required to not only master the basic theory and comprehensive expertise in the discipline of chemistry, but also cultivate the ability to do scientific research and specialized engineering work independently.

4. Postgraduate training method should be flexible and diversified. It is important to develop the initiative and consciousness of the graduate students.

## 八、其他

### VIII Others

1、为检查教学效果，确保培养质量，凡是培养方案规定的学习项目，均必须对研究生进行考核。考核方式、成绩评定的办法须在课程教学大纲内明确。

2、学术学位硕士研究生开题前需修满学位课程的学分，允许研究生开题后根据论文研究需要选修部分其他课程，申请答辩前修完全部课程即可。

3、各学科应对硕士研究生在学期间文献阅读量作出具体的规定与要求。硕士研究生应查阅本学科国内外文献 40 篇以上，其中外文文献不少于三分之一。

4、学术学位硕士研究生在课程学习阶段每月至少 1 次、论文工作阶段至少每月 2 次向指导教师汇报自己的学习和研究工作情况，形成制度并在培养方案中予以明确。

5、本次制订培养方案从 2016 级全日制学术学位硕士研究生开始执行。

1. To examine the effects of instruction, ensure the quality, the items listed in the program must have an assessment. Assessment methods and performance assessment methods need to be clearly stated in the course syllabus.

2. Academic graduates are required to get the credits before thesis proposal. Students are allowed to take some of the other elective courses according to the dissertation after thesis proposal. All the courses shall be completed before the application of dissertation defense.

3. Each discipline shall make specific regulations and requirements in the amount of literature to be read for the students during the study period. Graduates should review more than 40 pieces of literature at home and abroad, in which foreign literature shall be no less than one third.

4. Academic graduates shall report their own learning and research work to the supervisor at least once a month at the course learning stage, and at least twice a month during the paper sessions, which shall be institutionalized and clearly clarified in the programs.

5. This program will enact from 2016.

# 化学工程与技术学术型硕士研究生培养方案

(学科代码: 0817, 授工学硕士学位)

## Education Plan for Academic Graduate in Chemical Engineering and Technology

(Discipline Code:0817,Award Master Degree of Engineering)

### 一、培养目标

#### I Objectives

硕士学位获得者要较好地掌握马列主义、毛泽东思想和邓小平理论,拥护党的基本路线,树立正确的世界观、人生观和价值观,热爱祖国、遵纪守法,具有良好的职业道德、团结合作精神和坚持真理的科学品质,积极为社会主义现代化建设服务。

硕士学位获得者应具有坚实的化学工程与技术及相关学科的理论基础,了解本学科的前沿和发展动态,掌握本学科的现代实验技能和计算机应用技术,了解并掌握化工新工艺、新产品、新技术开发过程中工程问题的研究方法。具备独立承担化学工程与技术学科相关的工业生产过程中的应用基础理论研究和应用开发的能力,具备进行化工过程模拟、集成与优化、化工过程开发设计与改造的能力,能够进行新工艺、新过程、新技术、新产品和新装置的研究、开发、放大、设计和优化。

硕士学位获得者应具有严谨的治学态度和优良的科学作风,有较强的事业心和献身精神,胜任在科研院所、高等院校及化工企业等单位从事科学研究、教学、管理和工程技术工作。

硕士学位获得者身心健康,掌握一门外国语,能熟练阅读本专业的外文资料。

A master's degree gainer should observe the Marxism-Leninism, the MAO Zedong thought and Deng Xiaoping theory, uphold the party's basic line, set up the correct world outlook, the outlook on life and values, observe law and discipline, and also have the good professional ethics, solidarity and cooperation spirit and stick to the truth of the scientific quality, actively serve the socialist modernization construction.

The master's degrees gainer should be skillful in the basic theory of Chemical Engineering and Technology and related disciplines theory, understand the dynamics of cutting-edge professional disciplines, master the modern experimental skills and computer application technology, understand and master new technology of chemical industry, new products, new technology development of engineering problems in the process of research methods. The postgraduate students should have application of basic theory research and application development ability to independently undertake industrial production process of chemical engineering and technology disciplines, have the ability of chemical process simulation, integration and optimization, chemical engineering process development and transformation, have the ability of new technology, new process, new technologies, new products and new devices in the research, development, amplification and design and optimization.

A master's degree gainer should have the rigorous scholarship and excellent scientific style of work, have Strong career-ambition and dedication, be competent in scientific research, teaching, management and engineering work in scientific research institutes, institutions of higher learning and chemical enterprises and other units engaged.

A master's degree gainer with physical and mental health should master a foreign language to skillfully read professional literatures.

### 二、研究方向

#### II Disciplinary Research Areas

- |         |                         |
|---------|-------------------------|
| 1. 化学工程 | Chemical engineering    |
| 2. 化学工艺 | Chemical technology     |
| 3. 工业催化 | Industrial Catalysis    |
| 4. 生物化工 | Biochemical engineering |
| 5. 应用化学 | Applied chemistry       |

### 三、学制、学习年限及学分要求

#### III Educational System and Years of Study

硕士研究生学制为3年，学习年限一般为3年，最长不超过5年，实行学分制。毕业总学分不低于27学分，其中学位课程学分不低于17学分，选修课不低于5学分，必修环节5学分。

The general length for the cultivation of master degree pursuing graduate students is three years, and no longer than 5 years. Student must complete a total of not less than 27 credit points, in which at least 17 cpts are degree courses, at least 5 cpts compulsory parts, and at least 5 cpts optional ones.

### 四、课程设置

#### IV Curriculum System and Credit Requirements

课程类别 Course Category	课程编号 Course No.	课程名称 Course Name	学时 Hour	学分 Credit	开课学期 Semester	开课单位 School	备注 Remark
学位课 Degree Courses	01821031-040	第一外国语（上、下） <b>First Foreign Language (I+II)</b> （英、日、法、德、俄语） （English, Japanese, French, German, Russian）	72	4	1、2	外国语学院 <u>schoolofforeignlanguages</u>	必修 Require
	02121102	中国特色社会主义理论与实践 Theory and Practice with the Chinese Socialism	36	2	1	马克思主义学院 School of Marxism	必修 Require
	02121007	自然辩证法概论 Dialectics of Nature	18	1	1	马克思主义学院 School of Marxism	必修 Require
	01421065	数值分析 <u>Numerical Calculation</u>	36	2	2	理学院 School of Science	任选 1 门课程 Choose 1 Course
	01421061	数学物理方程 <u>Equations of Mathematical physics</u>	36	2	1		
	01421063	应用数理统计 Applied Mathematics and Statistics	36	2	1		
	01521106	最优化方法 Optimization methods	36	2	1	化生学院 SCCELS	必修 Require
	01521101	高等化学反应工程 Advanced Chemical Reaction Engineering	36	2	1	化生学院 School of chemistry, chemical engineering and life sciences (SCCELS)	不少于 3 门 Not
	01521102	高等化工分离工程 Advanced Chemical Separate Engineering	36	2	1		
	01521103	高等化工热力学 Advanced Chemical Engineering Thermodynamics	36	2	1		
	01521104	高等有机合成 Advanced Organic Synthesis	36	2	1		
	01521105	过程系统工程 Process Systems Engineering	36	2	1		



课程类别 Course Category	课程编号 Course No.	课程名称 Course Name	学时 Hour	学分 Credit	开课学期 Semester	开课单位 School	备注 Remark
	01521107	高分子合成新技术 Advanced Polymer technology	36	2	1		Less Than 3 Courses
	01561101	精细无机合成 Refined Inorganic Synthesis	36	2	2		
	01561102	精细有机合成 Fine Organic synthesis	36	2	1		
	01521303	现代分析与测试技术 Contemporary Analytical and Characterization Techniques	54	3	2		
选修课 Optional Courses	01522101	实验设计与数据处理 Experiment Design and Data Processing	18	1	1	化生学院 School of chemistry, chemical engineering and life sciences	必选 Require
	01522107	化工专业英语 Special English for Chemical Engineering	18	1	2		必选 Require
	01522102	化工学科发展前沿 Development of Chemical Discipline	36	2	1		任选 1 门 Choose 1 Courses
	01562103	化工计算机应用 Computer Application in Chemical Engineering	36	2	1		
	01562104	催化剂表征与测试 Characterization and Testing of Catalyst	36	2	1		
	01562105	功能化合物结构设计与合成 Structural design and synthesis of functional compounds	36	2	1		任选 1 门
	01562106	高等传递原理 Advanced transfer principle	36	2	1		
	01562108	高等仪器分析 Advanced Instrumental Analysis	36	2	1		
	01562109	绿色化学工艺 Green chemistry technology	36	2	1		Choose 1 Courses
	01562110	可持续能源系统工程 Sustainable Energy System Engineering	36	2	1		
	01562111	高分子结构与表征 Polymer Structure and Characterization	36	2	1		
	01562112	高等精细化学品化学 Advanced Chemistry of Fine Chemicals	36	2	1		
	01562113	精细化学品分析 Fine Chemicals Analysis	36	2	1		

课程类别 Course Category	课程编号 Course No.	课程名称 Course Name	学时 Hour	学分 Credit	开课学期 Semester	开课单位 School	备注 Remark
	01522114	涂料合成与涂装技术 Synthesis of paints and coating technology	36	2	2	chemical engineering and life sciences	
	01522115	超临界流体技术原理及应用 Supercritical Fluid Technology Principles and Practice	36	2	2		
	01522116	腐蚀原理与防腐蚀工艺技术 Principle and Protect Technology for Metal Corrosions	36	2	2		
	01562117	涂料先进表征技术 Advanced Techniques of Paint and Coating Characterization	36	2	1		
	01562118	生物质化学与化工 Biomass-based chemistry and chemical engineering	36	2	1	化生学院 School of chemistry, chemical engineering and life sciences	
	01562119	生物质功能材料 Biomass functional materials	36	2	1		
	01562308	化学前沿与进展 Progress of Chemistry	18	1	1		
	01562311	电化学原理与方法 Electrochemical principle and method	36	2	1		
跨学科选修课 Trans-Disciplinary selective course		具体课程见原则意见 Specific courses in the principles	18	1	1-2	研究生院 Graduate School	至少选修一门 At least choose one course
必修环节 Compulsory parts	01524301	实践环节 Practice Link		3	3	化生学院 School of chemistry, chemical engineering and life sciences	
	01524002	选题报告及中期考核 Topic Report		1	3		
	01524003	学术活动 Academic activity		1	5		

## 五、必修环节

### V Compulsory Courses

(一) 实践环节 3 学分。学生完成专业实践、社会实践、创新创业活动、竞赛、高水平论文、获奖成果、获得专利之一记 1 学分，在职研究生可免修该环节，但不记学分，所缺学分必须通过选修课程补齐；模拟完成一篇省（市）级及以上自然(社会)科学基金等纵向项目的申请书及 20 分钟汇报 PPT，经指导教师检查、评阅合格者记 2 学分。

实践环节分为专业实践和社会实践。实践环节分为专业实践和社会实践，专业实践可通过参与课题进行，社会实践可采取“助教、助管”等形式，包括参与导师的课题研究，参加学术讨论会，进行社会调查等。

参加实践的学生需写出实践报告，经指导教师检查、评阅后，合格者记1学分。

(二) 选题报告及中期考核1学分。硕士生在导师指导下选定论文题目后，进行文献调研，在了解学科发展前沿的基础上写出文献综述。并就课题的科学依据、目的、意义、国内外研究发展现状、

研究内容、实验方案论证及预期结果写成书面开题报告，在第三学期中旬，由导师统一组织进行硕士生开题报告，答辩审核通过者直接进入学位论文阶段。对不符合要求的开题报告，导师提出改进措施后，硕士生应提出改进措施，经认真修改，直至符合开题要求，方可开始学位论文工作。硕士研究生必须参加学校的中期考核。中期考核的内容包括课程学习的学分和成绩、思想表现和参加学术活动情况等，考核时间安排在第3学期进行。学位课程总平均成绩应达到75分以上。选题和中期报告通过后记1个必修环节学分。

(三) 学术活动1学分。 研究生要参加必要的学术讲座、学术活动、实践活动、和社会调查，加强研究生的科研能力、自学能力、动手能力、表达能力和写作能力的训练和培养。硕士研究生参加学术活动次数不少于5次，且每次活动要求写出500字以上报告。报告内容包括：学术活动的时间、地点、宣讲人、报告的内容和体会等。完成者记1学分。

(1) Practice 1 credit. Students can get 1 credit, after finished professional practice, social practice, innovation and entrepreneurial activities, competitions and high-level papers, awarding achievements, patent. Graduate students should simulate one longitudinal application for a provincial (city) level and above natural (social) science fund projects, then the students will report 20 minutes using ppt, who pass the comment of master tutor will get 2 credits.

(2) Topic selection report and mid-term examination 1 credit. Under the guidance of the tutor in the selected paper topics, Students should do literature investigation, then on the basis of the understanding of subject development cutting-edge write literature review. According to the subject's scientific basis, purpose, significance, Domestic and foreign research development status, the research content, experimental designs and the expected results, students should write thesis proposal. In the middle of the third semester, unified organization by your tutor for master's thesis proposal will be held. Those who pass the defense directly go into academic dissertation stage. If the thesis proposals are unsatisfactory, after the teacher put forward improvement measures, the master students should put forward the improvement measures, during earnest revision, and then conform to the requirements of thesis proposal, dissertation work can be started. Topic selection report deserves compulsory credits.

The graduate student must attend the mid-term examination of school. Mid-term examination including the course credits and grades, ideological manifestation and participating in academic activities, etc. the inspection time arrangement is in the third semester. The degree course's total average should reach the score of at least 75.

(3) Academic activity 1 credit. Graduate students should attend the necessary academic lectures, academic activities, practice activities, and social investigation, which can strengthen the graduate student's scientific research ability, self-learning ability, practice ability, expression ability and writing ability.

Number of graduate student to participate in academic activities should be not less than five times, and each activity requires to write report which includes the time, place, speaker, report content and experience etc. of academic activity. Consummator will get 1 credit.

## 六、科研与论文

### VI Scientific Research and Dissertation

学位论文是研究生综合运用所学专业知识，接受科研能力基本训练和掌握科学研究方法的最重要环节，是研究生学术水平和科研创新能力的综合体现，对提高研究生培养质量至关重要。鼓励硕士研究生在学期间在本学科或相关学科的国内外学术刊物或国内外学术会议上发表学术论文以及申请国家发明专利，主要环节如下：

#### 1. 论文内容

(1) 综述课题的理论意义和应用价值，国内外研究动态，需要解决的问题和途径以及本人做出的贡献。

(2) 说明采用的实验方法、试验装置和计算方法，并对整理和处理的数据进行理论分析与讨论。

(3) 对所得结果进行概括和总结，并提出进一步研究的看法和建议。

(4) 给出所有的公式、计算程序说明、列出必要的原始数据以及所引用的文献资料。

(5) 引用别人的科研成果必须明确指出，与别人合作的部分应说明本人的具体工作。

#### 2. 基本要求

(1) 硕士生应首先在导师的指导下做好选题工作，选题应在本学科或交叉学科范围内，选择在社会发展和经济建设中的科学研究或工程技术问题，或在学术上有一定理论价值的课题。

(2) 从事学位论文研究的时间不少于1年。

(3) 学位论文必须在导师的指导下由硕士生独立完成。学位论文的评审、答辩和学位申请与授予等工作按《中华人民共和国学位条例暂行实施办法》和《武汉理工大学学位授予工作细则》的规定进行。

(4) 学位论文要求概念清楚、立论正确、分析严谨、计算精确、数据可靠、行文通顺、图表清晰、层次分明、格式规范，能体现硕士生坚实的理论基础、较强的独立工作能力和优良的学风。

(5) 论文工作初期作开题报告。论文进行过程中，硕士生应至少向导师组作一次论文中期进展汇报，接受导师组对论文工作的阶段性检查，其中论文字数不少于4万字。

(6) 学位论文具体格式必须按《武汉理工大学研究生学位论文格式的统一要求》进行。

(7) 学位论文的评审、答辩和学位申请与授予等工作按《中华人民共和国学位条例暂行实施办法》和《武汉理工大学学位授予工作细则》的规定进行。

(8) 硕士研究生申请学位论文必须通过“学位论文学术不端行为检测系统(TMLC2)”检测，达到校学位评定委员会对学位论文的有关要求方可答辩。

Graduate thesis is the most important link of students' integrated use of professional knowledge, acceptance basic scientific research training and ability of mastering the scientific research method; is the integrated embodiment of graduate students' academic level and scientific research innovation ability and it is very important to improve the quality of graduate education. The graduate students are encouraged to publish academic papers and apply for national invention patent at domestic and international academic journals or academic conference in this course or related course, main parts as follows:

#### 1、thesis contents

(1) This thesis summarize the theoretical significance and application value of subject, domestic and foreign research dynamic, problems and the solving ways, as well as the contribution.

(2) State the experiment method, testing apparatus and calculation method, and theoretically analyze and discuss the sorting and processing data.

(3) Summarize the results, and put forward opinions and suggestions for further research.

(4) Give all the formulas and calculation program, and list the necessary raw data and the referenced document literature.

(5) Others' research achievements quoted must be made clear the part of cooperation with others, and explain the specific work

#### 2、Basic requirements

(1) First of all, the master shall under the guidance of a tutor to select topic, topic selection should be within the scope of this subject or interdisciplinary, choice in the economic construction of social development and scientific research or engineering technical problems, or have certain theory value on academic topic.

(2) The time of engaged in the dissertation studies is not less than 1 year.

(3) Dissertations must be done independently by master under the guidance of a tutor. Dissertation reviews, defense and degree application and awarded work should according to "The law of the People's Republic of China degree regulations, the interim measures for the implementation and the Wuhan university of Technology degree awarding work detailed rules" provisions.

(4) The dissertation needs to have clear concepts, rigorous theoretical right, analysis, calculation precision, reliable data, writing smooth, clear charts, distinct and specifications format, it can reflect master's solid theoretical basis, strong ability to work independently and good style of study.

(5) At the initial stage of thesis, students should write thesis proposal. During the thesis time, the master should give an account of interim progress report to the tutor at least one time, and accept tutor's periodic check of the thesis work, the paper words should be not less than 40000 words.

(6) Dissertation's specific format must obey 《the unity of Wuhan University of Technology graduate dissertation format requirements》.

(7) Dissertation reviews, defense and degree application and awarded work should be according to the law of the People's Republic of China degree regulations, the interim measures for the implementation and the Wuhan University of Technology degree awarding work detailed rules provisions.

(8) Application of postgraduate dissertation must pass "the academic dissertation misconduct detection system (TMLC2)", achieving school academic degree evaluation committee of the relevant requirement of the dissertation, then the postgraduate can have the defense.

## 七、培养方式与方法

## VII Cultivation Mode and Method

硕士研究生的培养应坚持导师（导师小组）负责制或系（所、教研室）集体培养相结合的方式，充分发挥指导教师的主导作用和研究生的创造能力，调动导师（导师小组）和集体的积极性，从政治思想和业务学习两方面引导研究生全面发展。具体方式如下：

1. 坚持政治理论学习与经常性的政治、纪律和思想教育相结合。在认真学好政治理论课的同时，要求研究生积极参加政治学习、公益劳动等集体活动。
2. 坚持课堂讲授和自学讨论相结合的教学方式，培养独立分析问题和解决实际问题的能力。广泛、灵活地采用案例式教学、专题讲座式教学、辩论式教学、研究式教学、启发式、讨论班、学术沙龙以及学术报告与学术讲座等多种教学方式。
3. 课程学习和科研论文工作并重的原则。既要深入掌握本门学科坚实的基础理论和系统的专门知识，又要培养具有科学研究或独立担负专门技术工作的能力。
4. 研究生培养方式应灵活多样，强调在培养过程中发挥研究生的主动性和自觉性。

Graduate training should adhere to the tutor (tutor group) responsible for the system or the system (by, Department of) collective culture combination, give full play to guide the leading role of teachers and graduate students the ability to create and mobilize tutor (tutor group) and collective enthusiasm comprehensive development, and guide the ideological and political aspects graduate business study. Here's how:

- (1) Adhere to political theory and regular political, ideological discipline and education combined. Carefully learn the lessons of political theory at the same time, requiring students to participate actively in political learning, community service and other group activities.
- (2) Insist on teaching lectures and self-study discussion of combining the development of independent ability to analyze and solve practical problems. Broad, flexible use of case teaching, teaching seminars, debates teaching, research teaching, heuristic, seminars, academic Salon variety of teaching methods and academic reports and academic lectures.
- (3) Both working principles courses and research papers. It is necessary to grasp the depth of expertise in the discipline and a solid foundation for the theory of the system, but also has the ability to cultivate scientific research or independent take on a special technical work.
- (4) Graduate training should be flexible and diverse, emphasizing graduate to play in the training process of initiative and self-consciousness.

## 八、其他

### VIII Others

1. 为检查教学效果，确保培养质量，凡是培养方案规定的学习项目，均必须对研究所进行考核。考核方式、成绩评定的办法须在课程教学大纲内明确。
2. 学术学位硕士研究生开题前需修满学位课程的学分，允许研究生开题后根据论文研究需要选修部分其他课程，申请答辩前修完全部课程即可。
3. 硕士研究生在学期间文献阅读量做出具体的规定与要求。硕士研究生应查阅本学科国内外文献 40 篇以上，其中外文文献不少于三分之一。
4. 在课程学习阶段每月至少 1 次、论文工作阶段至少每月 2 次向指导教师汇报自己的学习和研究工作情况，形成制度并在培养方案中予以明确。
5. 本次制订培养方案从 2016 级全日制学术学位硕士研究生开始执行。
  1. To examine the effects of instruction, ensure the quality, the items listed in the program must have an assessment. Assessment methods and performance assessment methods need to be clearly stated in the course syllabus.
  2. Academic graduates are required to get the credits before thesis proposal. Students are allowed to take some of the other elective courses according to the dissertation after thesis proposal. All the courses shall be completed before the application of dissertation defense.
  3. Each discipline shall make specific regulations and requirements in the amount of literature to be read for the students during the study period. Graduates should review more than 40 pieces of literature at home and abroad, in which foreign literature shall be no less than one third.
  4. Academic graduates shall report their own learning and research work to the supervisor at least once a month at the course learning stage, and at least twice a month during the paper sessions, which shall be institutionalized and clearly clarified in the programs.
  5. This program will enact from 2016.

# 药学学术型硕士研究生培养方案

(学科代码: 100700, 授医学硕士学位)

## Education Plan for Academic Graduate in Pharmacy

(Discipline Code:100700,Award Master Degree of Pharmacy)

### 一、培养目标

#### I Objectives

本专业培养的硕士研究生具有较系统的药学及相关学科的基础理论, 有熟练的专业实验方法和技能, 了解本学科的国内外发展动态。掌握药剂学、药物化学、合成药物化学和天然药物化学的基础理论, 对新药研究开发的全过程有较为系统的了解, 具有较扎实的有机化学、有机高分子化学及生物学的理论基础, 能运用有机化学、有机高分子化学及生物学的基本原理、方法和近代波谱解析技术, 进行药用高分子材料的设计与合成、药物新剂型的构建与评价、药物的合成与结构测定, 天然产物的分离与纯化、先导化合物的发现与结构修饰等工作。至少掌握一门外国语, 能熟练地阅读本专业外文资料, 具有良好的写作能力和其它实际应用能力; 具备较好的计算机技能, 能熟练使用计算机进行文献检索, 并使用计算机辅助科学研究工作; 具备良好的科学素养和道德品质, 遵守科学道德规范; 具有独立开展科学、技术研发能力, 具有较好的管理工作的能力。

Upon a solid cultivation in this discipline, the master graduates would possess systematic fundamental theories on pharmacy and the relevant subjects, skillful experimental methods and techniques and a general understanding of the development around the world. It is obligatory to grasp the basic theories of pharmacy, pharmaceutical chemistry, synthetic pharmaceutical chemistry and natural pharmaceutical chemistry, and the complete procedure in novel drug research. Meanwhile, it is also necessary to utilize the general principles and methods of organic chemistry, organic macromolecular chemistry, biology and modern spectra analytical techniques into various applications, such as the design and synthesis of medicinal pharmaceutical polymers, the build-up and evaluation of novel pharmaceutical formulation, synthesis and structure analysis of pharmaceuticals, separation and purification of natural product, discovery and structure modification of leading compounds. One should master at least one foreign language, being capable of reading, writing and fluent communications. A good computer technique for literature retrieval and scientific research is required. A good scientific literacy and moral quality is compulsory. One should be independent in scientific research and exploration and be capable of good management.

### 二、研究方向

#### II Disciplinary Research Areas

1. 药物化学 Pharmaceutical Chemistry
2. 药剂学 Pharmacy
3. 生药学 Pharmacognosy
4. 药用材料学 Pharmaceutical Materials
5. 微生物与生化药学 Microbial and Biochemical Pharmacy

### 三、学制、学习年限及学分要求

#### III Educational System and Years of Study

硕士研究生学制为3年, 学习年限一般为3年, 最长不超过5年, 实行学分制。毕业总学分不低于29学分, 其中课程总学分不低于24学分, 学位课程学分不低于17学分, 必修环节为5学分。

The educational system for a full-time academic graduate is three years and the study period lasts generally three years, no more than five years. Total credits for academic graduate should be no less than 29. Therein, the credits for courses is no less than 24, the degree course credits no less than 17 and the compulsory course credits 5.

### 四、课程设置

#### IV Curriculum System and Credit Requirements

课程类别 Course category	课程编号 Course No.	课程名称 Course name	理论学时 Theory Hrs	实验学时 experimental Hrs	学分 Credit	开课学期 Semester	开课单位 School	备注 Remark
公共学位课 (7学分) Public degree courses (7credits)	01821031-040	第一外国语(上、下)(英、日、法、德、俄语) First Foreign Language (A and B) (English, Japanese, French, German, Russian)	72		4	1、2	外语学院 School of Foreign Languages	必修 Compulsory
	02121102	中国特色社会主义理论与实践 Theory and Practice of Socialism with Chinese Characteristics	36		2	1	马克思主义学院 School of Marxism	
	02121101	马克思主义与社会科学方法论 Marxism and Social Science Methodology	18		1	1	马克思主义学院 School of Marxism	
专业学位课 (不少于10学分) Professional degree Course (≥10 credits)	01521021	药学发展前沿 Frontier development of pharmacy	36		2	1	化学化工与生命科学学院 School of Chemistry, Chemical Engineering and Life Sciences	任选至少5门 At least 5 courses should be selected
	01521002	药品注册技术与知识产权 Drug Registration Technique and intellectual property	36		2	1		
	01521022	药物新剂型与新技术 New techniques and new dosage forms of drugs	36		2	1		
	01521006	高等药物化学 Advanced medicinal chemistry	36		2	1		
	01521007	高等有机化学 Advanced Organic Chemistry	36		2	1		
	01521014	高等药物分析 Advanced Pharmaceutical Analysis	36		2	1		
	01521011	物理药剂学 Physical Pharmacy	36		2	1		
	01521009	药用高分子设计与评价 The design and evaluation of polymers for pharmaceuticals	36		2	1		
	01521023	大分子自组装药物传递系	36		2	1		

课程类别 Course category	课程编号 Course No.	课程名称 Course name	理论学时 Theory Hrs	实验学时 experimental Hrs	学分 Credit	开课学期 Semester	开课单位 School	备注 Remark
		统 Macromolecular self-assembled drug delivery systems						
	01521012	分子药理学 Molecular pharmacology	36		2	1		
	01521013	药物波谱学 Drug Spectroscopy	36		2	2		
	01521015	药物现代评价方法 Advanced Methods Pharmaceutical Evaluation	36		2	2		
选修课 (不少于7学分) Elective (≥10 credits)	01522001	专业英语 Professional English in Pharmacy	18		1	1	化学化工与生命科学学院 School of Chemistry, Chemical Engineering and Life Sciences	必选 Compulsory
	01522021	天然药物现代生物技术 Medicinal plants biotechnology	18		1	1		必选 Compulsory
	01522003	手性药物与手性技术 Chiral drugs and chiral technology	36		2	2	化学化工与生命科学学院 School of Chemistry, Chemical Engineering and Life Sciences	任选至少2门 At least 2 courses should be selected
	01522004	高等有机合成 Advanced organic synthesis	36		2	1		
	01522006	医药实验设计及数据处理 Pharmaceutical experimental design and data processing	36		2	1		
	01522008	现代药物分离技术 Modern drugs Separation Technology	36		2	1		
	01522010	纳米药物 Nano-biology	36		2	1		
	01522022	高级生化技术 Advanced biochemical technology	36		2	1		
	01522009	医药文献检索与利用 Medicinal Literature	36		2	1		



课程类别 Course category	课程编号 Course No.	课程名称 Course name	理论学时 Theory Hrs	实验学时 experimental Hrs	学分 Credit	开课学期 Semester	开课单位 School	备注 Remark
		Retrieval Utilization						
	01522014	高等天然药物化学 Advanced Chemistry for Natural Drugs	36		2	1		
	01522031	本草基因组学 Herbgenomics	36		2	1		
	01562001	细胞效应技术及实验 Cell Biology Technology	36		2	1		
	01562002	动物生物技术 Animal Biotechnology	36		2	1		
	01562003	结构生物学 Structural Biology	36		2	1		
Trans-Disciplinary selective course 跨学科选修课		具体课程见原则意见 Specific courses in the principles	18	1	1-2	研究生院 Graduate School	至少选修一门 At least choose one course	跨学科选修课 Trans-Disciplinary selective course
必修环节 (5学分) Compulsory courses (Credits)	01524301	实践环节 Practice		1	3		化学化工与生命科学学院 School of Chemistry, Chemical Engineering and Life Sciences	不少于5次 No less than 5 times
	01524003	学术活动 Academic activities		1	1			
	01524002	选题报告及中期考核 Topics and interim assessment		1	1	3		

## 五、必修环节

### V Compulsory Courses

必修环节包括实践环节、学术活动和选题报告及中期考核等，共5学分。

Compulsory courses include internship and practical training, academic activities and thesis proposal and interim assessment, in total 5 credits.

1. 实践环节3学分。为鼓励培养研究生从事教学、科学研究或独立担负专门技术工作的能力，学生完成专业实践、社会实践、创新创业活动、竞赛、高水平论文、获奖成果、获得专利之一记1学分，在职研究生可免修该环节，但不记学分，所缺学分必须通过选修课程补齐；模拟完成一篇省（市）级及以上自然（社会）科学基金等纵向项目的申请书及20分钟汇报PPT，经指导教师检查、评阅合格者记2学分。

2. 学术活动 1 学分。为了促使研究生能主动关心和了解国内外本学科前沿的发展动态，开阔视野，启发创造力，要求每个硕士研究生应参加学术活动不少于 5 次，且每次参加学术活动必须写出 500 字以上的心得。经指导教师（小组）检查、审核，完成者在必修环节记 1 个学分。

3. 选题报告及中期考核 1 学分。硕士研究生入学后，应在导师的指导下确定科学研究方向，查阅国内外相关文献，进行广泛的调查研究，提出学位论文选题报告，经审核后确定学位论文题目。选题报告通过后记 1 个必修环节学分。硕士研究生必须参加学校的中期考核。硕士研究生的选题报告和中期考核的具体要求按照研究生手册相关规定执行。

1. Three credits for internship and practical training. Students, who complete one of the following activities like professional practice, social practice, innovation and entrepreneurial activities, competitions and high-level papers, awarding achievements, and getting a patent, will be rewarded with 1 credit. On-job postgraduates can be exempted from the requirement, but they will not get credits, the missing credits must be filled by elective courses; complete a simulation application form and 20 minutes presentation on provincial (city) level or natural (social) science funds project. After inspected and reviewed by the supervisor (Group), those who passed will get two credits.

2. One credit for academic activities. In order to encourage candidates to take concern and understand the state of art at home and abroad, broaden their horizons and inspire their creativity, each candidate should make public academic report at least five times, attend academic reports at least 10 times, and write 500 words or more each time after participating in academic activities. After examination by the supervisor (Group), those who complete it will get one credit of the compulsory courses.

3. One credit for thesis proposal and interim assessment. Under the guidance of supervisors, candidates should pinpoint their research areas, look up relevant literature at home and abroad, conduct extensive investigations and make report on the selection of dissertation. After examination, the research topic will be definite. After passing thesis proposal defense, the candidate will get one credit. Graduates must participate in the medium-term assessment. Specific requirements for the report on topics selection of the thesis and interim assessment shall be carried out in accordance with the relevant provisions in graduate students' manual.

## 六、科研与论文

### VI Scientific Research and Dissertation

鼓励研究生参与导师承担的科研项目，注意选择有重要理论或应用价值的课题。药学学科是一门实验性很强的学科，论文要求建立在有足够的实验工作量的基础上，有丰富的实验数据，有一定深度的理论分析，论文应是由本人独立完成，要表明作者具有从事科学研究或独立担负专门技术工作的能力。要对本研究领域的国内外现状有较为清楚的了解。科研能力和论文撰写能力的培养是研究生培养的重要组成部分，在完成学位论文工作的同时，应撰写阶段性论文；在学位论文答辩之前，必须在本学科或相关学科的国内外学术刊物或国内外学术会议上以第一作者或第二作者（导师为第一作者），且以武汉理工大学的名义公开发表至少 1 篇与学位论文内容有关的学术论文。学位论文字数一般要求 3~5 万字。

硕士研究生申请学位论文必须通过“学位论文学术不端行为检测系统（TMLC2）”检测，达到校学位评定委员会对学位论文的有关要求方可答辩。

Graduates are encouraged to participate the scientific programs under the guidance of their supervisors. However, the programs should be of great value in theories and applications. Pharmacy is an experimental subject, and the corresponding thesis requires an abundant of experimental data and a deep insight in the theories. The thesis should be completed by the graduates independently, proving the author's ability in scientific research or in the field of specific technical jobs. Graduates must have a general but systematic understanding of the current situation on this research topic. The strong abilities on scientific research and writing thesis are import part in graduate cultivation. Before the completion of the thesis, a stage work report should be prepared. It is compulsory that at least one scientific manuscript should be published on the corresponding academic journals or conferences with the graduate's name as the first author or the second author (in this case, the supervisor must be the first author) before the defense, of which the content should be highly relevant to the thesis and the first corresponding affiliations should be Wuhan University of Technology. The number of the words in the thesis shall be usually 30 to 50 thousand.

Graduates applying for the degree must meet the relevant requirements of publication in the graduates' manual. Thesis must pass the test by TMLC2 and reach the requirements of the Academic Degree Evaluation Committee for thesis before the defense.

## 七、培养方式与方法

### VII Cultivation Mode and Method

硕士研究生的培养应坚持导师（导师小组）负责制或系（所、教研室）集体培养相结合的方式，充分发挥指导教师的主导作用，调动导师（导师小组）和集体的积极性，从政治思想和业务学习两方面引导研究生全面发展。具体方式如下：

1. 坚持政治理论学习与经常性的政治、纪律和思想教育相结合。在认真学好政治理论课的同时，要求研究生积极参加政治学习、公益劳动等集体活动。

2. 坚持课堂讲授和自学讨论相结合的教学方式，培养独立分析问题和解决实际问题的能力。广泛、灵活地采用案例式教学、专题讲座式教学、辩论式教学、研究式教学、学术沙龙以及学术报告与学术讲座等多种教学方式。

3. 课程学习和科研工作并重的原则。既要深入掌握本门学科坚实的基础理论和系统的专门知识，又要培养具有科学研究或独立担负专门技术工作的能力。

4. 研究生要参加必要的学术活动和实践活动，加强研究生的科研能力、自学能力、动手能力、表达能力和写作能力的训练和培养。硕士研究生参加学术活动次数不少于 5 次，且每次活动要求写出报告。报告内容包括：学术活动的时间、地点、宣讲人、报告的内容和体会等。全部完成者记 1 学分。

研究生培养方式应灵活多样，强调在培养过程中发挥研究生的主动性和自觉性。

Tutor or tutor-based instruction group is the mode of cultivation, with flexible and diverse, heuristic, seminar-style teaching methods demonstrating the leading role of the supervisor. The detailed cultivation is as follows:

1. A combination of political theory study and constant education on politic, laws and ideological education must be insisted. With the conscientious study of the political theory, the graduates are required to participate the activities such as politics study and voluntary labor.

2. Classroom teaching and self-study are combined to cultivate an independent ability in analyzing and solving the practical questions. A variety of teaching modes would be widely and flexibly employed including case teaching, seminar teaching, debate teaching, research teaching, academic salon and academic report and lecture and etc.

3. Under the principle of regarding both course study and scientific publications as equally important, graduates must not only master the solid fundamental theories and systematic specialized knowledge, but also be capable of pursuing scientific research or affording to independent technical job.

4. Graduates must participate the essential academic activities and practical activities, to enhance the training and cultivation in scientific research, self-study, manipulative work, expression and scientific writing. It is compulsory that every graduate must involve the academic activities no less than 5 times and also the corresponding report. The report should include the date, location, lecturer, content and comments. Those who complete it will get one credit of the compulsory courses.

5. The cultivation modes should be flexible and an emphasis would be on the initiative and self-consciousness of each graduate.

## 八、其他

### VIII Others

1、为检查教学效果，确保培养质量，凡是培养方案规定的学习项目，均必须对研究生进行考核。考核方式、成绩评定的办法须在课程教学大纲内明确。

2、学术学位硕士研究生开题前需修满学位课程的学分，允许研究生开题后根据论文研究需要选修部分其他课程，申请答辩前修完全部课程即可。

3、各学科应对硕士研究生在学期间文献阅读量作出具体的规定与要求。硕士研究生应查阅本学科国内外文献 40 篇以上，其中外文文献不少于三分之一。

4、学术学位硕士研究生在课程学习阶段每月至少 1 次、论文工作阶段至少每月 2 次向指导教师汇报自己的学习和研究工作情况，形成制度并在培养方案中予以明确。

5、本次制订培养方案从 2017 级全日制学术学位硕士研究生开始执行。

1. To examine the effects of instruction, ensure the quality, the items listed in the program must have an assessment. Assessment methods and performance assessment methods need to be clearly stated in the course syllabus.

2. Academic graduates are required to get the credits before thesis proposal. Students are allowed to

take some of the other elective courses according to the dissertation after thesis proposal. All the courses shall be completed before the application of dissertation defense.

3. Each discipline shall make specific regulations and requirements in the amount of literature to be read for the students during the study period. Graduates should review more than 40 pieces of literature at home and abroad, in which foreign literature shall be no less than one third.

4. Academic graduates shall report their own learning and research work to the supervisor at least once a month at the course learning stage, and at least twice a month during the paper sessions, which shall be institutionalized and clearly clarified in the programs.

5. This program will enact from 2016.