

化学工程专业型硕士研究生培养方案

(领域代码: 085216, 授工程硕士学位)

Education Plan for Professional Graduate in Chemical Engineering

(Discipline Code:085216,Award Master Degree of Engineering)

一、培养目标

IObjectives

化学工程领域硕士专业学位研究生培养侧重于工程实践与应用能力训练,包括工程研究、工程开发和工程应用,主要是为本领域(化学工程、化学工艺、应用化学、精细化工、高分子化工等)范围内的工业企业、工程设计和研究院所培养基础扎实、素质全面、工程实践能力强,并具有一定创新能力的应用型、复合型高层次工程技术和工程管理人才。

本专业硕士学位获得者应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。

本专业硕士学位获得者在业务上必须掌握本学科坚实的基础理论和系统的专门知识,掌握解决化学工程与技术问题的先进技术方法和技术手段;了解本领域的技术现状和发展趋势;具有进行本领域技术开发与创新的能力;具有担负本领域工程技术和工程管理能力;掌握一门外语技能,能熟练阅读本领域的科技资料与文献。能适应和胜任企业需求,促进企业发展,推进企业技术进步。

The education of Master of Chemical Engineering (Professional Degree) focuses on the engineering practice and the training of application ability, including engineering research, engineering development and engineering application. From the master study of the chemical engineering, the students should behave the solid and comprehensive quality, strong engineering practice ability, and become the applied and high-level interdisciplinary talents in engineering and technology, engineering management. They are able to serve in the industrial enterprises, engineering design and research institutes in the fields of chemical engineering, chemical technics, fine chemicals, and polymer science.

The students should have a true grasp of Marxism-Leninism and MAO Zedong Thought and Deng Xiaoping Theory, and build up the correct outlook on the world, life and values. They should abide by laws and disciplines, and have good virtue on their behaves, together with the honest in academics, hard work and spirit of unity and cooperation, strive for climbing the top of science and technology.

The students should have a comprehensive grasp of the basic theories, systematic specialty knowledge, and also the advanced technology methods in chemical engineering and technology. The students should also be command of the technology situation and developing trend, with the ability of technology development and innovation in the field of chemical engineering. The students should have the basic ability to read technology information and literature and take academic research by using a foreign language. The students should be able to adapt and qualified the needs of enterprise, promote the technology development and progress of enterprise.

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

全日制专业学位硕士研究生学制 2 年，学习年限一般为 2-3 年，最长不超过 4 年。

非全日制专业学位硕士研究生学习年限一般 2-3 年，最长不超过 5 年，在校学习研究的累计时间一般应不少于 6 个月，学位论文工作时间至少 1.5 年（从开题时间起）。

专业硕士研究生总学分要求不低于23学分。其中学位课程不少于13学分，专业选修课程不低于4学分，必修环节不低于6分。

The general length for the cultivation of full time professional master degree pursuing graduate students is three years, and no longer than 5 years. The general length for the cultivation of parttime professional master degree pursuing graduate students is 2-3 years, and no longer than 5 years. The study time should be more than 6 months, and the dissertation time should be more than 1.5 years (from topic time). Student must complete a total of not less than 22credit points, in which at least 12 cpts are degree courses, at least 6 cpts compulsory parts, and at least 4 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	01841002-006	第一外国语（英、日、法、德、俄语） First Foreign Language (English, Japanese, French, German, Russian)	54	3	1	外国语学院 School of foreign languages	
	02141102	自然辩证法概论 Dialectics of Nature	18	1	1	马克思主义学院 School of Marxism	
	01441022	数值计算 Numerical Calculation	36	2	1	理学院 School of Science	二选一 Choose 1 Course
	01541105	最优化方法(方法类) Optimization methods	36	2	1	化生学院 SCELS	
	02141105	工程伦理学 Engineering Ethics	18	1	1	马克思主义学院 School of Marxism	必选 Require
	01541101	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	任选 3 门 Choose 3 Courses
	01541102	高等化工分离工程 Advanced Chemical Separate 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
	01541103	高等化工热力学 Advanced Chemical Engineering Thermodynamics	36	2	1	sciences	
	01541104	过程系统工程 Process Systems Engineering	36	2	1		
	01541106	高分子合成新技术 Advanced Polymer technology	36	2	1	化生学院 School of chemistry, chemical engineering and life sciences	Choose 3 Courses
	01541107	高等有机合成 Advanced Organic Synthesis	36	2	1		
	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		
选修课 Elective	01542101	化工专业英语 Special English for Chemical Engineering	18	1	1	化生学院 School of chemistry, chemical engineering and life sciences	必选 Require
	01542102	化工技术经济 Chemical Techno-Economics	36	2	1		任选 2 门 Choose 2 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		
	01562106	高等传递原理 Advanced transfer principle	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
	01542107	多相催化反应动力学 Kinetics of Heterogeneous Catalytic Reaction	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		
	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		
	01542113	涂料结构学 Theory of Coating Structure	36	2	1		
	01562113	精细化学品分析 Fine Chemicals Analysis	36	2	1		
	01542119	表面界面化学 Surface and Interface Chemistry	36	2	1		
	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		
	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		

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		
compulsory parts 必修环节	01544001	课程实践 Practice Course		2	1	化生学院 School of chemistry, chemical engineering and life sciences	
	01544002	综合实践 Complex Course		3	2		
	01544003	选题报告和中期考核 Topic Report		1	3		

五、必修环节

VCompulsory Courses

1. 实践环节5学分。专业学位硕士研究生在学期间，必须保证不少于半年的专业实践教学，可采用集中实践与分段实践相结合的方式，应届本科毕业生的实践教学时间原则上不少于1年。专业学位硕士研究生的实践环节一般分为课程实践和综合实践两部分。课程实践一般在校内实验中心、工程中心和研究中心（院、所）等单位完成，主要进行专业课程实践和科研技能训练，课程实践合格者记2学分。综合实践一般依托各专业领域的校外实践联合培养基地完成，在校内外导师的共同指导下，结合工程实际岗位，主要进行专业综合实践和应用能力训练，综合实践合格者记3学分。课程实践和专业实践也可合并进行。非全日制研究生必须保证不少于1.5年的专业实践教学。

实践环节是专业学位硕士研究生培养过程的必备过程，研究生要提交实践计划，撰写实践总结报告。对研究生实践环节实行全过程管理和质量评价，确保实践教学质量。

各培养单位要提供和保障开展实践的条件，注重吸纳和使用社会资源，建立多种形式的联合培养基地，改革创新实践性教学模式，联合培养专业型硕士研究生。

2. 选题报告及中期考核1学分。研究生应在导师指导下，通过查阅文献资料、调查研究，在第三学期提出学位论文选题报告。学位论文选题应来源于应用课题或工程实践，必须有明确的工程背景和应用价值。选题报告经开题报告考核小组审议通过，学院审定后报研究生院培养处教学管理科。选题报告和中期考核通过后记1个必修环节学分。

专业学位硕士研究生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. Practice part, 5 credits. The students with the professional degree must take the professional practice course not less than half a year during the period of learning, which can be performed with the centralized practice or step practice. The professional practice includes the course practice and comprehensive practice. The course practice focuses on the professional course practice and scientific research skills training, which will be in the center of experimentation in campus, engineering center and research center (institute) etc. The student who passed the course practice can get 2 credits. The comprehensive practice focuses on the professional comprehensive practice and application ability training, which generally depends on the joint training base out-campus and under the guidance of supervisor in campus and out-campus. The student who passed the comprehensive practice can get 3 credits. The course practice and professional practice can be combined.

Practice part is a necessary process in professional degree study. The students should submit the practice plan and write the practice summary report. The supervisor should supervise the whole process and take the quality assessment to ensure the quality of practice teaching. The training unit should provide the right conditions, absorb and use social resources, establish various forms of joint training base, reform the practice mode to guarantee the implementation of practice.

2. Topic selection report and mid-term examination, 1 credit. The students should put forward dissertation topic report in the third semester through the consult of literature material, investigation and study under the guidance of supervisor. The dissertation topic should be derived from the application topic or engineering practice, which should take a clear engineering background and application value. Topic selection report must be approved by the examination group and the school. After the pass of the topic selection, the student can obtain 1 credit.

六、科研与论文

VI Scientific Research and Dissertation

专业学位硕士研究生在学期间，鼓励其在专业学术期刊上公开发表论文或取得工程应用成果。

专业学位硕士学位论文形式可以多种多样，可采用硕士学位论文与调研报告、应用基础研究、规划设计、产品开发、案例分析、项目管理、文学艺术作品等相结合的形式。学位论文须独立完成，要体现研究生综合运用科学理论、方法和技术解决实际问题的能力。学位论文字数一般2~3万字。

学位论文评阅人和答辩委员会成员中，应有相关行业实践领域具有高级专业技术职务的专家。

学位论文答辩和学位授予的其它要求，参照全日制硕士学术型研究生的相关规定执行。

The students with the professional degree are encouraged to publish papers in academic journal or get engineering application results during the period of master study.

The dissertation can be varied in the forms of thesis with the investigation report, applied basic research, planning and design, product development, case analysis, project management, literature and art works, etc. The dissertation should be completed independently by students and it should exhibit the ability the student in the scientific theory, method and technology. The length of dissertation is generally 20,000-30,000 words.

The defense committee of the university must include the experts with senior professional technical position in the relevant fields.

Other requirements on the defense and diploma refer to the planning of full-time academic degree students.

七、培养方式与方法

VII Cultivation Mode and Method

专业学位硕士研究生按专业领域分班建制，以班级为单位组织教学。公共学位课和专业基础课一般在入学后1.5学期内在校内完成；其它课程和实践环节可在入学后1.5—3学期内在研究院（所）、工程中心和校外联合培养基地完成。

专业学位硕士研究生采用校内外双导师制，以校内导师指导为主，校外导师参与实践过程、项目研究、课程与论文等多个环节的指导工作。各专业领域应吸收本领域的专家、学者和工程技术人员组成团队，实现团队指导和培养，共同承担专业学位硕士研究生的培养工作。

The students are educated in the mode of classes according to the subject. In general, during the first 1.5 semester, the students must complete the public degree courses and professional basic courses, and other courses and practice should be completed in 1.5-3 semester in the research institute, or engineering center.

The education of professional degree students is used the double tutorial system, mainly guide by supervisor in campus, and supervisor off-campus participates in the work of practice process, project research, courses and thesis. At the same time, scholars, experts and engineering and technical personnel should be absorbed in the team to undertake the education of professional degree 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，均必须对专业学位硕士研究生进行考核。考核方式、成绩评定的办法须在课程教学大纲内明确。

2、本次制订培养方案的范围包括目前学校批准设立的所有专业学位种类。专业、层次相同的全日制、非全日制研究生专业适用同一培养方案。

3、专业硕士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。

4、各专业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。

5、专业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。

6、本次制订培养方案从 2018 级专业学位硕士研究生开始执行。

1. Master's level students in specialized degree programs must be examined according to the learning program of the training scheme rules, which could in some circumstances guarantee the teaching efficiency and training quality. The examination method and the assessment criteria must be explained in the course outline.

2. This teaching program includes all the professional degree categories approved by the university, and all the postgraduates are applicative to the same teaching program in the same faculty.

3. Normally a master's level student in specialized degree programs must attend a certain number of courses in order to apply for the thesis proposal. Students are allowed to choose some relevant courses when necessary, but should pass all these courses before the thesis defense.

4. Departments should formulate rules and requirements about the students' references reading during the period of learning at the university. The number of references reading must not be less than 40, and the foreign ones should be one third or more of the total.

5. Normally a master's level student in specialized degree programs should report to their supervisor on his or her work at least once a month during the course learning period and twice a month in the thesis writing period. This should be explained in the training program.

6. This training program goes into effect for master's level students in specialized degree programs from the year of 2016.

药学专业型硕士研究生培养方案

(领域代码: 105500, 授药学硕士学位)

Education Plan for Professional Graduate in Pharmacy

(Discipline Code:105500,Award Master Degree of Pharmacy)

一、培养目标

I Objectives

药学专业学位硕士研究生通过系统的理论知识学习及医药企业的实习实践,能够较好地掌握药学及与相关的交叉学科的专业知识,分析本领域内的实际问题及产生的原因,成为胜任药物的技术转化、生产、流通、使用、监管等诸多应用领域实际工作的复合型、高层次、具有一定创新能力的应用型专门人才。

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。掌握药物化学、药剂学等基础理论,对新药研究开发的全过程有较为系统的了解,有严谨的科学态度和作风。硕士学位获得者应具有较高的综合素质、创新能力和适应能力,可在科研院所、高等院校及制药企业等相关领域从事研究、教学、管理和工程技术工作。熟练掌握一门外语,并能用外语阅读本专业的文献资料,具有一定的外语写作和口语能力。

Through a systematic study and practical internship at pharmaceutical companies, the professional graduates on Pharmacy should master the specific knowledge in pharmacy and the related interdisciplinary subjects. Graduates can make an analysis for the actual questions and the reasons in this field, aiming to be professional experts with versatile talents, high level and innovation ability in the fields of technical transformation, manufacturing, transporting, practical use and management of pharmaceuticals.

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 and pharmaceutical chemistry and the complete procedure in novel drug research. Graduates should possess versatile quality, innovation and adaption ability, being capable of carrying out research, teaching, management and engineering in the corresponding institutes, universities and pharmaceutical companies. Graduates should master at least one foreign language, being able to read, write and communicate.

二、研究方向

II. Disciplinary Research Areas

1. 药物合成研究与应用 Drug synthesis research and application
2. 药物新剂型研究与应用 Novel pharmacy formulation research and application
3. 天然药物研究与开发 Natural pharmaceutical research and development
4. 药事管理与医药经济 Pharmacy administration and medical economics

三、学制及学习年限

III. Educational System and Years of Study

全日制药学硕士专业学位研究生学制为2年,学习期限一般为2-3年,最长不超过4年,实行学分制,其中课程学习阶段为6月。

The educational system for a full-time professional graduate is two years and the study period lasts generally two to three years, no more than four years. Therein, the course period is six months.

四、课程体系及学分要求

IV. Curriculum System and Credit Requirements

1. 课程设置的基本要求

专业学位硕士研究生教学内容要强调理论性与应用性课程的有机结合，突出案例分析和实践研究；教学过程要重视团队学习、案例分析、现场研究、模拟训练等方法；要注重培养学生研究实践问题的意识和能力。

1. Basic requirements

The teaching content for the professional graduates stresses on the efficient combination of the theories and practical courses, with an emphasis on the case analysis and practical investigation. The teaching process must pay considerable attention on the teamwork, case analysis, scene study and simulation training and etc. A cultivation on the consciousness and abilities of studying the actual questions should be highlighted.

2. 课程体系及学分分布

药学专业学位硕士研究生课程总学分不少于 25 学分，公共学位课 4 学分，专业学位课不少于 10 学分，选修课不少于 5 学分。

2. Curriculum System and Credits Distributions

Total credits for academic graduate should be no less than 25. Therein, the credits for public degree courses is 4, the degree course credits no less than 10 and the elective course credits no less than 5.

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（4学分） Public degree courses (4credits)	01841002-006	第一外国语 (英、日、法、德、俄语) First Foreign Language (English, Japanese, French, German, Russian)	54		3	1	外语学院 School of Foreign Languages	必修 Compulsory
	02141102	自然辩证法概论 Introduction to Dialectics of Nature	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)	01541011	药物化学实验方法学 Experimental Methodology of medicinal chemistry	36		2	1	化学化工与生命科学学院 School of Chemistry, Chemical Engineering and Life Sciences	必选至少1门 At least one course should be selected
	01541004	药物新剂型与新技术 New techniques and new dosage forms of drugs	36		2	1		
	01541012	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	任选至少4门课程 At least four courses should be selected
	01541002	药事管理法规与知识产权 The discipline of pharmacy administration and new drug research	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
	01541003	药物现代评价方法 Advanced Methods Pharmaceutical Evaluation	36		2	1	Life Sciences	
	01541006	药物波谱学 Drug Spectroscopy	36		2	1		
	01541007	制剂分析与药品质量标准 Pharmaceutical Analysis and Quality Standards	36		2	1		
	01541013	药典概论 Overview of pharmacopoeia	18		1	1		
选修课 (不少于5学分) Elective (≥5 credits)	01542001	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
	01542002	现代医药企业管理(企业) Modern pharmaceutical company management (company)	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 2门课程 At least two courses should be selected
	01542003	医药文献检索与利用 Medicinal Literature Retrieval Utilization	36		2	1		
	01542004	现代制药分离技术 Modern drugs Separation Technology	36		2	1		
	01542005	高等药物化学实验(企业) Advanced pharmaceutical chemistry experiment (company)	54		3	2		
	01542006	医药实验设计与数据处理	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
		Pharmaceutical experimental design and data processing						
	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		
必修环节(6学分) Compulsory courses (6 credits)	01544001	课程实践 Course practice			2	2	化学化工与生命科学学院 School of Chemistry, Chemical Engineering and Life Sciences	必修 Compulsory
	01544002	综合实践 Integrated practice			3	3		
	01544003	选题报告及中期考核 Topics and interim assessment			1	2		

五、必修环节

V. Compulsory courses

必修环节包括专业实践和选题报告及中期考核等，共6学分。

Compulsory courses include professional practice and thesis proposal and interim assessment, in total 6 credits.

1. 专业实践5学分。药学专业学位硕士研究生在学期间，必须保证不少于半年的专业实践，可采用集中实践与分段实践相结合的方式，应届本科毕业生的实践教学时间原则上不少于1年。专业学位硕士研究生的专业实践一般分为课程实践和综合实践两部分。课程实践一般在校内实验中心、工程中心和研究中心（院、所）等单位完成，主要进行专业课程实践和科研技能训练，课程实践合格者记2学分。综合实践一般依托各专业领域的校外实践联合培养基地完成，在校内外导师的共同指导下，结合工程实际岗位，主要进行专业综合实践和应用能力训练，综合实践合格者记3学分。课程实践和综合实践也可合并进行。

专业实践是专业学位硕士研究生培养过程的必备过程，研究生要提交实践计划，撰写实践总结报告。对研究生实践环节实行全过程管理和质量评价，确保实践教学质量。

1. 5 credits for professional practice. During the study period, professional graduates must ensure not less than six months of professional practice, and can be a combination of the concentrated practice and segment practice, the practical teaching time for fresh graduates in principle shall be not less than 1 year. Professional practice courses for professional graduates are generally divided into two parts, course practice and integrated practice. Course practice is general completed in the school laboratory, engineering centers and research centers (schools, institutes) and other units, mainly for professional practice and research skills training courses. Qualifiers for curriculum practice will get 2 credits. Comprehensive Practice will generally be completed rely on off-campus joint training practice base of various professional fields, under the joint guidance of internal and external tutors, combining with engineering practice jobs,

mainly for professional practice and comprehensive application ability training; passer of integrated practice will get 3 credits. Comprehensive Practice and Course Practice can be merged together.

Professional practice is an essential process for professional graduates. Students must submit practice plan and write final practice report. The whole process management and quality assessment of internship and practical training will be conducted to ensure the quality of teaching practice.

2. 选题报告及中期考核 1 学分。研究生应在导师指导下，通过查阅文献资料、调查研究，在第三学期提出学位论文选题报告。学位论文选题应来源于应用课题或工程实践，必须有明确的工程背景和应用价值。选题报告经开题报告考核小组审议通过，学院审定后报研究生院（筹）培养处教学管理科选题报告通过后，记 1 个必修环节学分。

全日制硕士专业学位研究生参加学校的中期考核。其中期考核的具体要求，参照研究生手册“研究生中期考核与选题管理办法”执行。

2. 1 credit for reports on research proposal and interim assessment. Graduates should submit the report on thesis proposal in the third semester, through literature review, research, under the guidance of tutors. Thesis proposals should be derived from the application of the subject or engineering practice, with a clear engineering background and application value. Passing the research proposal, the graduate will get 1 credit in compulsory courses.

Specific requirements for reports on thesis proposal 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

药学硕士专业学位研究生在学期间，鼓励其在专业学术期刊上公开发表论文或取得工程应用成果。专业学位研究生学位论文形式可以多种多样，可采用硕士学位论文与调研报告、应用基础研究、产品开发、案例分析、项目管理等相结合的形式。学位论文须独立完成，要体现研究生综合运用科学理论、方法和技术解决实际问题的能力。学位论文字数，可参照全日制硕士学术型研究生学位论文的要求确定（一般 2~3 万字）。

学位论文评阅人和答辩委员会成员中，应有相关行业实践领域具有高级专业技术职务的专家。

学位论文答辩和学位授予的其它要求，参照全日制硕士学术型研究生的相关规定执行。

During the schooling period, professional graduates are encouraged to publish papers on professional academic journals or gain engineering application achievements. Thesis of professional graduates may take various forms. They can be the combination of the form of a thesis for a master's degree and research reports, applying basic researches, planning and design, product development, case studies, project management, or literary and artistic works. Thesis shall be accomplished independently, to reflect the ability of integrated use of scientific theories, methods and techniques to solve practical problems. The number of the words in the thesis shall be referred to the requirements of full-time academic graduate (usually 20 to 30 thousand words).

Reviewers and members of the thesis defense committee should have experts with senior professional technical positions in practice areas of relevant industry.

Other requirements for thesis defense and degree awarding should refer to relevant provisions of the full-time academic graduate.

七、培养方式与方法

VI. Cultivate Mode and Method

药学专业学位硕士研究生按专业领域分班建制，以班级为单位组织教学。公共学位课和专业基础课一般在入学后 1.5 学期内在校内完成；其它课程和实践环节可在入学后 1.5-3 学期内在研究院（所）、工程中心和校外联合培养基地完成。专业学位研究生的培养采用校内外双导师制。一般以校内导师指导为主，校外导师参与实践过程、项目研究、课程与论文等多个环节的指导工作。

应吸收不同学科领域的专家、学者和实践领域有丰富经验的专业人员，共同承担全日制硕士专业学位研究生的培养工作。注重培养实践研究和创新能力，增长实际工作经验，缩短就业适应期限，提高专业素养及就业创业能力。

Professional graduates are divided into classes according to areas of expertise, and teaching is organized in class units. Public degree courses and specialized basic courses are usually completed in 1.5 semester after enrollment; other courses and internship and practical training shall be completed in 1.5-3 semesters after enrollment in research institute, engineering center or joint training base outside the school.

Professional graduates adopt intramural and extramural dual tutorial system, and the intramural tutor is in charge, while extramural tutors participate in the guidance work of practice, projects research, courses and thesis and other parts. Various professional fields should absorb experts, scholars and engineering technicians to form a team to achieve team coaching and training, and to share the work in training professional graduates.

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，均必须对专业学位硕士研究生进行考核。考核方式、成绩评定的办法须在课程教学大纲内明确。

2、本次制订培养方案的范围包括目前学校批准设立的所有专业学位种类。专业、层次相同的全日制、非全日制研究生专业适用同一培养方案。

3、专业硕士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。

4、各专业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。

5、专业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。

6、本次制订培养方案从 2017 级专业学位硕士研究生开始执行。

1. Master's level students in specialized degree programs must be examined according to the learning program of the training scheme rules, which could in some circumstances guarantee the teaching efficiency and training quality. The examination method and the assessment criteria must be explained in the course outline.

2. This teaching program includes all the professional degree categories approved by the university, and all the postgraduates are applicative to the same teaching program in the same faculty.

3. Normally a master's level student in specialized degree programs must attend a certain number of courses in order to apply for the thesis proposal. Students are allowed to choose some relevant courses when necessary, but should pass all these courses before the thesis defense.

4. Departments should formulate rules and requirements about the students' references reading during the period of learning at the university. The number of references reading must not be less than 40, and the foreign ones should be one third or more of the total.

5. Normally a master's level student in specialized degree programs should report to their supervisor on his or her work at least once a month during the course learning period and twice a month in the thesis writing period. This should be explained in the training program.

6. This training program goes into effect for master's level students in specialized degree programs from the year of 2016.