土地科学技术学院

School of Land Science and Technology

测绘工程专业培养方案

一、专业培养目标

本专业旨在培养德智体美劳全面发展，具有良好的自然科学与人文科学素养以及职业道德，具备数理和计算机基础，掌握地质学和测绘专业基础知识、空间信息数据采集和综合处理的基本原理、方法和技能，胜任国家基础测绘、自然资源调查、地质环境灾害监测等领域相关的测绘地理信息工程技术与测绘管理工作，具有较强的组织管理能力、继续学习能力、创新能力、国际视野和地质测绘特色的高级工程技术人才，毕业五年左右达到测绘工程师水平，成为单位技术或管理骨干。本专业毕业生应达到以下目标：

（1）具备良好的道德修养和人文社会科学素养，良好的工程职业道德和规范，较强的社会责任感和事业心，基于自身知识和能力，愿意服务于国家与社会，能够承担和履行社会责任；

（2）能够在国家基础测绘、自然资源环境调查、地质环境灾害监测、城市和工业与工程建设等领域，从事测绘地理信息工程的设计与实施、技术开发、工程管理等工作，胜任测绘工程师的工作；

（3）具备较强的团队意识、国际视野、沟通交流能力、合理决策能力和组织管理能力，能够承担团队中的领导角色；

（4）具备创新能力和继续学习能力，能够独立或协同承担测绘地理信息科研工作；

（5）具有良好的专业素养、丰富的工程管理经验和适应行业发展的能力，成为测绘地理信息企事业单位中的技术骨干或管理人才。

二、毕业要求

本专业学生主要学习测绘工程的基本理论和基本知识，掌握测绘及数据处理的手段与方法，接受测绘基本技能训练，具有应用所学基础理论和专业知识，分析解决自然资源调查与地质灾害监测复杂工程问题、开展科学研究、从事生产设计和组织管理的基本能力。毕业生应获得以下方面的知识、能力与素质：

（1）工程知识：具备解决基础测绘和地质测绘的复杂工程问题的数学、自然科学、工程基础、测绘科学、地球科学等知识以及运用专业知识进行工程数据获取和处理的能力；能提出解决基础测绘、城市地质环境灾害监测、自然资源环境调查等测绘工程问题的可行方案，并进行比较与综合。

（2）问题分析：能够应用数学、自然科学、工程科学、测绘科学、地球科学的基本原理和逻辑思维，结合文献检索与分析，准确识别与表达复杂测绘工程中的核心问题和关键环节，具备问题剖析、数学建模以及推理验证的能力，以获得有效结论。

（3）设计／开发解决方案：能够根据复杂基础和地质测绘工程项目的目标、任务和要求，考虑社会、安全、健康、法律、文化以及环境等因素，设计、开发解决方案，编撰项目设计任务书及相关技术文档；了解当代科技发展前沿，能够应用新技术与方法对设计方案进行完善和创新。

（4）研究：能够基于科学原理结合测绘基础理论和新技术以及计算机技术，对复杂基础和地质测绘工程问题进行研究，通过创新型实验设计，利用信息综合、数据处理分析与解释等科学方法，得到合理有效的结论。

（5）使用现代工具：熟练掌握现代测绘仪器设备、测绘地理信息相关软件的操作和使用，能够针对复杂测绘工程，综合运用软硬件工具对地质调查与灾害监测等工程方案进行优化设计，应用于形变灾害的监测、预测和模拟，以及地理信息服务中的数据获取及分析，并理解其局限性。

（6）工程与社会：熟悉国家和测绘行业方针、政策和法律法规，理解测绘成果的重要性，能够客观评价测绘工程技术实践和复杂工程问题解决方案对社会、健康、安全、法律以及文化的影响，对所实施的工程质量负责，并理解应承担的责任。

（7）环境和可持续发展：能够理解和评价复杂基础和地质测绘工程问题的实践活动对环境保护、社会可持续发展的影响。

（8）职业规范：具有爱国主义情怀，良好的、人文社会科学素养和社会责任感，能够在测绘工程实践中理解并遵守工程职业道德和规范，理解工程师对公众的安全、健康和福祉，以及环境保护的社会责任理解测绘成果对国家安全、领土完整、公众安全与社会等的影响，并自觉履行其责任。

（9）个人和团队：具有良好的组织沟通、协调管理、合理决策能力及团队合作精神，能够理解一个多角色团队中每个角色的含义以及对整个团队环境和目标的意义；能够在多学科背景下的团队中胜任个体、团队成员以及负责人等职责。

（10）沟通：具备较强的口头和书面表达能力，具有一定的国际视野和跨语言文化沟通和交流的能力。能够就复杂测绘工程问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言和清晰表达或回应指令。

（11）项目管理：理解并掌握基础测绘和地质测绘工程实施过程中的工程管理与经济决策方法，并能在地学和资源环境等多学科环境中应用。

（12）终身学习：能够针对基础测绘和地质测绘不断变化的需求，具有终身学习的意识，掌握自主有效的学习能力；具备综合应用各种手段收集资料、拓展知识领域、不断学习、适应发展的能力。

三、主干学科

测绘科学与技术。

四、学制与学位

学制四年。学生修满规定的最低毕业学分，达到毕业要求后，授予工学学士学位。

五、核心课程

主要核心课程：测绘学概论、误差理论与测量平差基础、大地测量学基础、GNSS 原理及其应用、地理信息系统原理、遥感原理与应用（双语）、摄影测量学、激光雷达技术与地学应用（双语）、不动产测量、InSAR 技术与地质灾害监测应用、测绘管理学与法律法规等。

主要实践课程：北戴河地质实习、数字地形测量学实习、大地测量实习、测量程序综合实践、地理信息工程实践、摄影测量实习、工程测量实习、遥感原理与地学应用实习、InSAR 地质灾害形变监测实习、LiDAR 地学应用实习、创新创业实践、毕业论文等。

Undergraduate Program in Surveying and Mapping Engineering

1. Academic Objectives

The major aims to cultivate talents who are well-rounded in moral, intellectual, physical and aesthetic development, have good natural science and human science literacy as well as professional ethics, have basic knowledge of mathematics, science and computer, master basic knowledge of geology and mapping, basic principles, methods and skills of spatial information data collection and comprehensive processing. They are competent in the management of mapping and geographic information engineering technology and mapping in the fields of national basic mapping, natural resources survey, geological and environmental disaster monitoring, etc. They have strong organizational management ability, continuous learning ability, innovation ability, international vision and geological mapping characteristics of scientific research and application-oriented technical personnel. About five years after graduation, they will reach the level of surveying and mapping engineer and become the backbone of the technical or management agency. After five years of practice, graduates of this major should achieve the following goals:

(1) Possess good ethics and humanities and social science literacy, good engineering professional ethics and standards, strong sense of social responsibility and professionalism, based on their own knowledge and ability, willing to serve the country and society, and able to assume and perform social responsibilities;

(2) Be able to engage in the design and implementation of surveying and mapping geographic information engineering, technology development, project management, etc. in the fields of national basic surveying and mapping, natural resources and environmental surveys, geological environmental disaster monitoring, urban and industrial and engineering construction, and be competent for the work of surveying and mapping engineers;

(3) Possess a strong team awareness, international vision, communication skills, reasonable decision-making skills and organizational management skills, and be able to assume the leadership role in the team;

(4) Have the ability to innovate and continue to learn, and be able to independently or collaboratively undertake scientific research on surveying and mapping geographic information;

(5) With good professional quality, rich engineering management experience and the ability to adapt to the development of the industry, become a technical backbone or managerial talent in surveying and mapping geographic information enterprises and institutions.

2. Graduation Requirements

Students in this major mainly learn the basic theory and basic knowledge of surveying and mapping engineering, master the means and methods of surveying and mapping and data processing, receive basic skills training in surveying and mapping, and have the basic ability to apply the basic theories and professional knowledge to analyze and solve complex engineering problems of natural resource investigation and geological disaster monitoring, conduct scientific research, and engage in production design and organization management.

Graduates should acquire the following knowledge, abilities and qualities:

(1) Engineering Knowledge: Graduates have the knowledge of mathematics, natural science, engineering fundamentals, surveying and mapping science, earth science, etc. to solve complex engineering problems of basic surveying and mapping and the ability to use professional knowledge to acquire and process engineering data; and they can propose feasible solutions to surveying and mapping engineering problems of basic surveying and mapping, urban geo-environmental disaster monitoring, natural resources

and environment survey, etc., and compare and synthesize them.

(2) Problem Analysis: Graduates are able to apply the basic principles and logical thinking of mathematics, natural science, engineering science, surveying and mapping science, earth science, combined with literature search and analysis, to accurately identify and express the core problems and key aspects of complex surveying and mapping engineering, and have the ability to problem analysis, mathematical modeling and reasoning verification to obtain effective conclusions.

(3) Design/Develop Solutions: Graduates should be able to design and develop solutions, compile project design tasks and related technical documents according to the objectives, tasks and requirements of complex foundation and geological mapping projects, taking into account social, safety, health, legal, cultural and environmental factors; and they should be aware of the frontiers of contemporary technological development and be able to apply new technologies and methods to improve and innovate design solutions.

(4) Research: Graduates are able to conduct research on complex basic and geological mapping engineering problems based on scientific principles combined with basic mapping theories and new technologies as well as computer technology, and they can use scientific methods such as information synthesis, data processing analysis and interpretation to obtain reasonable and effective conclusions through innovative experimental designs.

(5) Use of Modern Tools: Graduates are proficient in the operation and use of modern surveying and mapping instruments and equipment, surveying and mapping geographic information-related software, and they are able to optimize the design of engineering programs such as geological survey and disaster monitoring for complex surveying and mapping projects, apply them to the monitoring, prediction and simulation of deformation disasters, as well as data acquisition and analysis in geographic information services, and understand their limitations.

(6) Engineering and Society: Graduates are familiar with national and mapping industry guidelines, policies and laws, and understand the importance of mapping results. They are able to objectively evaluate the social, health, safety, legal, and cultural impacts of mapping engineering practices and solutions to complex engineering problems, take responsibility for the quality of the work performed, and understand the responsibilities that should be assumed.

(7) Environment and Sustainable Development: Graduates will be able to understand and evaluate the impact of practical activities on complex fundamental and geological mapping engineering problems on environmental protection and sustainable development of society.

(8) Professional Norms: Graduates have patriotism, good, humanities and social sciences and a sense of social responsibility, and can understand and abide by engineering professional ethics and norms in the practice of surveying and mapping engineering, and understand the social responsibility of engineers for public safety, health and welfare, and environmental protection understand the impact of surveying and mapping results on national security, territorial integrity, public safety and society, etc., and consciously fulfill their responsibilities.

(9) Individual and Team: Graduates have good organizational communication, coordination and management, rational decision-making skills and teamwork, and are able to understand the meaning of each role in a multi-role team and its significance to the overall team environment and goals; they are able to perform competently as individuals, team members and leaders in a multidisciplinary context.

(10) Communication: Graduates have strong oral and written communication skills, with some international perspective and the ability to communicate and interact across languages and cultures. They are able to communicate and interact effectively with industry peers and the public on complex surveying and mapping engineering issues, including writing reports and design submissions, presenting statements,

and articulating or responding to instructions clearly.

(11) Project Management: Graduates understand and master the engineering management and economic decision-making methods in the implementation of basic mapping and geological mapping projects, and can apply them in a multidisciplinary environment such as geology and resource environment.

(12) Lifelong Learning: Graduates are able to address the changing needs of basic surveying and mapping and geological mapping, have the awareness of lifelong learning and master the ability to learn independently and effectively; and they have the ability to comprehensively apply various means to collect information, expand the field of knowledge, keep learning and adapt to development.

3. Main disciplines

Surveying and mapping science and technology.

4. Length of Schooling and Degree

The length of schooling is four years of full-time study. Students will be awarded the Bachelor Degree of Engineering when they have completed the required minimum credits and have met all other requirements.

5. Core Courses

Main core courses: Introduction to Surveying and Mapping, Error Theory and Surveying Adjustment Foundation, Geodesy Foundation, GNSS Principle and Application, Geographic Information System Principle, Remote Sensing Principle and Application (Bilingual), Photogrammetry, Lidar Technology and Geoscience Application (Bilingual), Real estate surveying, InSAR Technology and Geological Disaster Monitoring Application, Surveying and Mapping Management and Laws and Regulations, etc.

Main practical courses: Beidaihe Geological Practice, Digital Topography Practice, Geodesy Practice, Comprehensive Practice of Surveying Program, Geographic Information Engineering Practice, Photogrammetry Practice, Engineering Survey Practice, Remote Sensing Principles and Geoscience Application Practice, InSAR Geological Disaster Deformation Monitoring Practice, LiDAR Geoscience Application Practice, Innovation and Entrepreneurship Practice, Graduation Thesis, etc.

六、最低毕业总学分要求及学分分配 (Minimum Required Credits and Distribution)

课程模块 Course module	课程类别 Course Classification	学时数 Hours	学分 Credits	学 期 Semester										
				1	2	1 夏	3	4	2 夏	5	6	3 夏	7	8
通识教育 Liberal Education	通识教育必修课程 Required Courses of General Education	698	38	9.25	15.25	1	4.25	4.25		2.25	1.25		0.25	0.25
	通识教育选修课程 Selective Courses of General Education	192	12											
专业教育 Professional Education	学科基础课程 Disciplinary Fundamental Courses	712	44.5	10	14		13.5	5		2				
	专业核心课程 Specialized Fundamental Courses	632	39.5		4		1	11		11.5	10		2	
	专业拓展课程 Specialized Development	96	6											
实践教育 Practical Education	课程实践 Course Practice	32 周 +80 学时	29		1	10	1		3	1.5		2.5	5	6
	课外实践 Extracurricular practice		6											
必修课总学分 Required course credits				151										
选修课总学分 Elective course credits				24										
最低毕业总学分 Total Credits				175										

七、课程设置 (Curriculum)

1、通识教育必修课程 (Required Courses of General Education)：698 学时 (698 Hours)，38 学分 (38 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR181009	思想道德与法治 Ideological Morality and Rule of Law	48	3	40	8		考试 Exam	1	
GR181008	中国近现代史纲要 Essentials of Modern Chinese History	48	3	40	8		考试 Exam	2	
GR182014	马克思主义基本原理 Fundamental Principles of Marxism	48	3	40	8		考试 Exam	3	
GR182024	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thoughts and Theoretical System of the Chinese Characteristic Socialism	32	2	32			考试 Exam	4	
GR182022	习近平新时代中国特色社会主义思想概论 Introduction to Xi Jinping Thoughts on Socialism with Chinese Characteristics in the New Era	48	3	48			考试 Exam	5	
GR181013	形势与政策 (1) Situation and Policy(1)	4	0.25	4			考查 Term Paper	1	
GR181014	形势与政策 (2) Situation and Policy(2)	4	0.25	4			考查 Term Paper	2	
GR181015	形势与政策 (3) Situation and Policy(3)	4	0.25	4			考查 Term Paper	3	
GR181016	形势与政策 (4) Situation and Policy(4)	4	0.25	4			考查 Term Paper	4	
GR181017	形势与政策 (5) Situation and Policy(5)	4	0.25	4			考查 Term Paper	5	
GR181018	形势与政策 (6) Situation and Policy(6)	4	0.25	4			考查 Term Paper	6	
GR181019	形势与政策 (7) Situation and Policy(7)	4	0.25	4			考查 Term Paper	7	
GR181020	形势与政策 (8) Situation and Policy(8)	4	0.25	4			考查 Term Paper	8	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR301004	大学生职业生涯规划与就业指导（1） Career Planning and Employment Guidance for University Students (1)	20	1	16	4		考试 Exam	2	
GR303005	大学生职业生涯规划与就业指导（2） Career Planning and Employment Guidance for University Students (2)	18	1	12	6		考试 Exam	6	
GR301005	大学生心理素质教育（1） Mental Health (1)	16	1	16			考查 Term Paper	1	
GR303006	大学生心理素质教育（2） Mental Health (2)	16	1	16			考查 Term Paper	5	
GR302008	军事理论 Military Theory	36	1	36			考试 Exam	3	
GR081071	大学英语（1） College English(1)	64	4	64			考试 Exam	1	
GR081072	大学英语（2） College English(2)	32	2	32			考试 Exam	2	
GR081067	大学英语素质拓展课 Competence-oriented Education for College English	32	2	32			考试 Exam	2	
GR141005	体育（1）（系列课程） Physical Education (1)	32	1		32		考试 Exam	1	
GR141006	体育（2）（系列课程） Physical Education(2)	32	1		32		考试 Exam	2	
GR142007	体育（3）（系列课程） Physical Education(3)	32	1		32		考试 Exam	3	
GR142008	体育（4）（系列课程） Physical Education(4)	32	1		32		考试 Exam	4	
GR041003	程序设计基础 A Fundamentals of Programming A	64	4	24	24	16	考试 Exam	2	
总计 Total		698	38	476	206	16			

2、**通识教育选修** (Selective Courses of General Education)：192 **学时** (192Hours)，12 **学分** (12 Credits)

序号 No.	课程类别 Courses Classification	课程名称 Courses Name	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
1	人文社科类（含在线课程） Humanities and Social Sciences Courses (Inc. Online courses)	见附件 1	7	考查 Term Paper	2-8	4 个类别中选修 7 个学分，其中，《大学生安全教育》（1 学分）必选。
2	自然科学类（含在线课程） Natural Science Courses (Inc. Online Courses)	见附件 2		考查 Term Paper	2-8	
3	自然文化类 Natural Culture Courses	见附件 3		考查 Term Paper	2-8	
4	体育与健康类 Sports and Health Courses	见附件 4		考查 Term Paper	5-8	
5	创新创业教育类（含在线课程） Innovation and Entrepreneurship Courses (Inc. Online Courses)	见附件 5、6	3	考查 Term Paper	2-8	选修 3 个学分，其中《新生研讨课》（1 学分）必选。
6	审美与艺术类 Aesthetics and Art Courses	见附件 7	2	考查 Term Paper	2-4	
总计 Total			12			

3、学科基础课程 (Disciplinary Fundamental Courses)：712 学时（712 Hours)，44.5 学分 (44.5 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR120036	测绘工程专业导论 Introduction to Surveying and Mapping Engineering	16	1	16			考查 Term Paper	1	
DR191001	高等数学 A（1） Advanced Mathematics A(1)	96	6	96			考试 Exam	1	
DR191002	高等数学 A（2） Advanced Mathematics A(2)	96	6	96			考试 Exam	2	
DR192005	线性代数 Linear Algebra	32	2	32			考试 Exam	3	
DR192006	概率论与数理统计 Probabilistic and Mathematics Statistic	48	3	48			考试 Exam	4	
DR191101	大学物理 A（1） College Physics A(1)	64	4	64			考试 Exam	2	
DR192102	大学物理 A（2） College Physics A(2)	64	4	64			考试 Exam	3	
DR011036	地球科学概论 Geosciences	64	4	32	32		考试 Exam	2	
DR021223	工程图学 B Engineering Drawing B	48	3	38	10		考试 Exam	1	
DR021029	工程力学 Engineering Mechanics	56	3.5	52	4		考试 Exam	3	
DR042126	电工电子技术 A Electrical and Electronic Technology	64	4	50	14		考试 Exam	3	
DR122073	计算机图形学 Computer Graphics	32	2	22	10		考试 Exam	5	
DR123074	数据结构 Data Structure	32	2	22	10		考试 Exam	4	
总计 Total		712	44.5	632	80				

4、**专业核心课程** (Core Professional Courses)：632 学时 (632 hours)，39.5 学分 (39.5 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR122003	测绘学概论 Introduction to Geomatics	16	1	16			考试 Exam	3	
SR122101	误差理论与测量平差基础 Error Theory and Foundation of Surveying Adjustment	56	3.5	44	12		考试 Exam	4	
SR121102	数字地形测量学 Digital Topography	64	4	40	24		考试 Exam	2	
SR122103	GNSS 测量原理及其应用 GNSS Surveying Principles and Application	40	2.5	28	12		考试 Exam	4	
SR122104	大地测量学基础 Foundation of Geodesy	48	3	36	12		考试 Exam	4	
SR123105	地图制图学基础 Foundation of Cartography	32	2	26	6		考试 Exam	5	
SR123106	地理信息系统原理 A Geographic Information System A	48	3	30	18		考试 Exam	5	
SS123013	测绘管理学与法律法规 Management and Laws of Surveying and Mapping	24	1.5	24			考试 Exam	5	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
SR123107	工程测量学 Engineering Surveying	48	3	28	20		考试 Exam	6	
SR123108	海洋测绘 Hydrographic Surveying and Charting	32	2	20	12		考试 Exam	5	
SR123109	摄影测量学 Photogrammetry	48	3	32	16		考试 Exam	6	
SR123110	激光雷达技术与地学应用（双语） LiDAR: Principles and Geo-application （bilingual）	32	2	24	8		考试 Exam	6	
SR123017	遥感原理与应用（双语） Principles and Applications of Remote Sensing（bilingual）	32	2	24	8		考试 Exam	4	
SR123111	InSAR 技术与地质灾害监测应用 InSAR: Principles and Application in Geological Hazard	32	2	24	8		考试 Exam	6	
SR124112	不动产测绘 Real Estate Surveying	32	2	20	12		考试 Exam	7	
SR123113	测绘程序设计与实践 Comprehensive Programming Practice of Surveying and Mapping	48	3	24	24		考试 Exam	5	
总计 Total		632	39.5	440	192				

5、**专业拓展课程** (Specialized Development Courses)：96 **学时** (96 hours)，6 **学分** (6 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR192018	复变函数与积分变换 Complex Variable Function and Integral Transformations	48	3	48			考试 Exam	4	
SR123114	人工智能与地学大数据 Artificial Intelligence and Geoscience Big Data	32	2	24	8		考试 Exam	6	
SS122115	自然资源调查与管理 Investigation and Management of Natural Resources	32	2	32			考查 Term Paper	3	
SS123116	地质灾害监测与预警预报 Geological Disaster Monitoring and Early Warning Forecast	32	2	24	8		考查 Term Paper	6	
SS123117	遥感技术与地学应用 Remote Sensing Technology and Geoscience Application	32	2	24	8		考查 Term Paper	6	
SS122119	测绘专业英语 Specialty English for Surveying and Mapping	24	1.5	24			考查 Term Paper	4	
SR122042	土地管理学 Land Management	48	3	42	6		考试 Exam	3	
SR122045	土地资源学 Land Resources Science	48	3	36	12		考试 Exam	3	
SR122046	土地经济学（含房产经济学） Land Economics	48	3	48			考试 Exam	4	
SR123141	国土空间规划 Territorial Spatial Planning	48	3	32	16		考试 Exam	5	
SS124120	科研论文写作与实践 Research Paper Writing and Practice	32	2	24	8		考查 Term Paper	7	
总计 Total		456	28.5	382	74				

6、**课程实践** (Practice Course)：32 **周** +80 **学时** (32 weeks and 80 hours)，29 **学分** (29 Credits)

课程代码 Course Code	课程名称 Course Name	周数（学时） Week(hour)	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
PR311003	军事技能训练 Military Theory and Practice	2 周	1	考查 Term Paper	1	
PR181010	思想政治社会实践 Political Social Practice	32 学时	2	考查 Term Paper	1 夏	
PR011044	北戴河地质实习 Geological Practice in Beidaihe	2 周	2	考查 Term Paper	1 夏	
PR191045	实验物理（1） Physics Experiments （1）	24 学时	1	考试 Exam	2	
PR192046	实验物理（2） Physics Experiments （2）	24 学时	1	考试 Exam	3	
PR121121	数字地形测量实习 Topographic Surveying Practice	4 周	4	考查 Term Paper	1 夏	
PR122122	大地测量学与 GNSS 应用实习 Geodesy and GNSS application practice	3 周	3	考查 Term Paper	2 夏	
PR123123	摄影测量课程设计与实习 Course design and practice of Photogrammetry	2.5 周	2.5	考查 Term Paper	3 夏	
PR123124	地理信息工程课程设计与实践 Course design and practice of Geographic Information Engineering	1.5 周	1.5	考查 Term Paper	5	
PR124026	工程测量实习 Engineering Surveying Practice	2 周	2	考查 Term Paper	7	
PR124125	地质环境与灾害监测综合实习 Comprehensive practice of geological environment and disaster monitoring	3 周	3	考查 Term Paper	7	
PR124030	毕业设计（论文） Graduation Design (Thesis)	12 周	6	考查 Term Paper	8	
总计 Total		32 周 +80 学时	29			

7、**课外实践** (Extracurricular practice)：6 **学分** (6 Credits)

包括主题教育活动、社会实践、志愿服务、勤工助学、学科竞赛、文体活动、创新创业活动、劳动实践等，其学分的认定按照教务处相关规定执行。

Extracurricular practice include Theme Education, Social Practice, Volunteer Service, Work-study Program, Discipline Competition, Cultural and Sports Activities, Innovative and Entrepreneurial Activities, Labor Practice and so on. The recognition of the credits for extracurricular practice shall be implemented according to the regulations of Academic Affairs Office.

八、毕业要求与培养目标矩阵（工程教育认证类专业）

毕业要求	培养目标				
	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
毕业要求 1：工程知识		√			
毕业要求 2：问题分析		√		√	
毕业要求 3：设计 / 开发解决方案	√	√		√	√
毕业要求 4：研究		√		√	√
毕业要求 5：使用现代工具		√			√
毕业要求 6：工程与社会	√				√
毕业要求 7：环境和可持续发展	√				√
毕业要求 8：职业规范	√		√		√
毕业要求 9：个人和团队			√		√
毕业要求 10：沟通	√	√	√		√
毕业要求 11：项目管理		√	√		√
毕业要求 12：终身学习	√	√	√	√	√

遥感科学与技术专业培养方案

一、专业培养目标

本专业旨在培养德智体美劳全面发展，具有良好的自然科学与人文科学素养，具备数理和计算机基础，掌握遥感科学与技术专业基础知识、多源遥感信息数据采集和综合处理的基本原理、方法和技能，胜任自然资源调查、生态环境保护、地质环境灾害监测等领域相关的遥感工程技术与管理工作，具有较强的组织管理能力、继续学习能力、创新能力、国际视野和地质遥感特色的高级应用型工程技术人才，毕业五年左右达到遥感工程师水平，成为单位技术及管理骨干。

二、毕业要求

本专业学生主要学习遥感科学与技术的基本理论和基本知识，掌握遥感及数据处理的手段与方法，具有较好的科学和工程素养，具有应用所学基础理论和专业知识，分析解决复杂工程问题、开展科学研究、从事生产设计和组织管理的基本能力。

三、主干学科

测绘科学与技术、计算机科学与技术、地理学。

四、学制与学位

学制四年。学生修满规定的最低毕业学分，达到毕业要求后，授予工学学士学位。

五、核心课程

测绘学概论、误差理论与测量平差基础、大地测量学基础、GNSS 原理及其应用、地理信息系统原理、航空与航天数据获取、遥感原理与应用、摄影测量学、数字图像处理、遥感图像解译、激光雷达技术与地学应用、人工智能与地学大数据、遥感技术与地学应用等。

Undergraduate Program in Remote Sensing Science and Technology

1. Academic Objectives

This major cultivates the all-round development students of morality, intelligence, physical education, beauty and labor. The students possess good natural science and humanities literacy, mathematics and computer foundation, mastering the basic knowledge of remote sensing science and technology and the basic principles of multi-source remote sensing information data collection and comprehensive processing, methods and skills. The students can be competent in remote sensing engineering technology and management related to natural resource investigation, ecological environment protection, geological environmental disaster monitoring and other fields. The applied engineering and technical talents, with strong organizational and management capabilities, continued learning capabilities, innovative capabilities, international vision and features of geological remote sensing, have reached the level of remote sensing engineers about five years after graduation and become the backbone of the unit's technology and management.

2. Graduation Requirements

This major requires students to learn the basic theories and basic knowledge of remote sensing science and technology, master the methods of remote sensing and data processing. Students should have some basic abilities, including good scientific and engineering literacy, the basic theories and professional knowledge they have learned, analyzing and solving complex engineering problems, carrying out scientific research, engaging in production design and organization management.

3. Main disciplines

Surveying and Mapping, Computer Science and Technology, Geography.

4. Length of Schooling and Degree

The length of schooling is four years of full-time study. Students will be awarded the Bachelor Degree of Engineering when they have completed the required minimum credits and have met all other requirements.

5. Core Courses

Introduction to Geomatics, Error Theory and Foundation of Surveying Adjustment, Foundation of Geodesy, Principles and Applications of Global Navigation Satellite System, The Principles of Geographic Information System, Aviation and Aerospace Data Acquisition, Remote Sensing Principles and Applications, Photogrammetry, Digital Image Processing, Remote Sensing Image Interpretation, Lidar Technology and Geoscience Applications, Artificial Intelligence and Geoscience Big Data, Remote Sensing Technology and Geoscience Applications, etc.

六、最低毕业总学分要求及学分分配 (Minimum Required Credits and Distribution)

课程模块 Course module	课程类别 Course Classification	学时数 Hours	学分 Credits	学 期 Semester										
				1	2	1 夏	3	4	2 夏	5	6	3 夏	7	8
通识教育 Liberal Education	通识教育必修课程 Required Courses of General Education	698	38	9.25	15.25	1	4.25	4.25		2.25	1.25		0.25	0.25
	通识教育选修课程 Selective Courses of General Education	192	12											
专业教育 Professional Education	学科基础课程 Disciplinary Fundamental Courses	856	53.5	7	17		13.5	14		2				
	专业核心课程 Specialized Fundamental Courses	408	25.5				1.5	6		9	9			
	专业拓展课程 Specialized Development	128	8											
实践教育 Practical Education	课程实践 Course Practice	33 周 +80 课时	30		1	9	1			5.5		2.5	5	6
	课外实践 Extracurricular practice		6											
必修课总学分 Required course credits				147										
选修课总学分 Elective course credits				26										
最低毕业总学分 Total Credits				173										

七、课程设置 (Curriculum)

1、**通识教育必修课程** (Required Courses of General Education)：698 **学时** (698 Hours)，38 **学分** (38 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR181009	思想道德与法治 Ideological Morality and Rule of Law	48	3	40	8		考试 Exam	1	
GR181008	中国近现代史纲要 Essentials of Modern Chinese History	48	3	40	8		考试 Exam	2	
GR182014	马克思主义基本原理 Fundamental Principles of Marxism	48	3	40	8		考试 Exam	3	
GR182024	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thoughts and Theoretical System of the Chinese Characteristic Socialism	32	2	32			考试 Exam	4	
GR182022	习近平新时代中国特色社会主义思想概论 Introduction to Xi Jinping Thoughts on Socialism with Chinese Characteristics in the New Era	48	3	48			考试 Exam	5	
GR181013	形势与政策 (1) Situation and Policy(1)	4	0.25	4			考查 Term Paper	1	
GR181014	形势与政策 (2) Situation and Policy(2)	4	0.25	4			考查 Term Paper	2	
GR181015	形势与政策 (3) Situation and Policy(3)	4	0.25	4			考查 Term Paper	3	
GR181016	形势与政策 (4) Situation and Policy(4)	4	0.25	4			考查 Term Paper	4	
GR181017	形势与政策 (5) Situation and Policy(5)	4	0.25	4			考查 Term Paper	5	
GR181018	形势与政策 (6) Situation and Policy(6)	4	0.25	4			考查 Term Paper	6	
GR181019	形势与政策 (7) Situation and Policy(7)	4	0.25	4			考查 Term Paper	7	
GR181020	形势与政策 (8) Situation and Policy(8)	4	0.25	4			考查 Term Paper	8	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR301004	大学生职业生涯规划与就业指导（1） Career Planning and Employment Guidance for University Students (1)	20	1	16	4		考试 Exam	2	
GR303005	大学生职业生涯规划与就业指导（2） Career Planning and Employment Guidance for University Students (2)	18	1	12	6		考试 Exam	6	
GR301005	大学生心理素质教育（1） Mental Health (1)	16	1	16			考查 Term Paper	1	
GR303006	大学生心理素质教育（2） Mental Health (2)	16	1	16			考查 Term Paper	5	
GR302008	军事理论 Military Theory	36	1	36			考试 Exam	3	
GR081071	大学英语（1） College English(1)	64	4	64			考试 Exam	1	
GR081072	大学英语（2） College English(2)	32	2	32			考试 Exam	2	
GR081067	大学英语素质拓展课 Competence-oriented Education for College English	32	2	32			考试 Exam	2	
GR141005	体育（1）（系列课程） Physical Education (1)	32	1		32		考试 Exam	1	
GR141006	体育（2）（系列课程） Physical Education(2)	32	1		32		考试 Exam	2	
GR142007	体育（3）（系列课程） Physical Education(3)	32	1		32		考试 Exam	3	
GR142008	体育（4）（系列课程） Physical Education(4)	32	1		32		考试 Exam	4	
GR041003	程序设计基础 A Fundamentals of Programming A	64	4	24	24	16	考试 Exam	2	
总计 Total		698	38	476	206	16			

2、**通识教育选修** (Selective Courses of General Education)：192 **学时** (192Hours)，12 **学分** (12 Credits)

序号 No.	课程类别 Courses Classification	课程名称 Courses Name	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
1	人文社科类（含在线课程） Humanities and Social Sciences Courses (Inc. Online courses)	见附件 1	7	考查 Term Paper	2-8	4 个类别中选修 7 个学分，其中，《大学生安全教育》（1 学分）必选。
2	自然科学类（含在线课程） Natural Science Courses (Inc. Online Courses)	见附件 2		考查 Term Paper	2-8	
3	自然文化类 Natural Culture Courses	见附件 3		考查 Term Paper	2-8	
4	体育与健康类 Sports and Health Courses	见附件 4		考查 Term Paper	5-8	
5	创新创业教育类（含在线课程） Innovation and Entrepreneurship Courses (Inc. Online Courses)	见附件 5、6	3	考查 Term Paper	2-8	选修 3 个学分，其中《新生研讨课》（1 学分）必选。
6	审美与艺术类 Aesthetics and Art Courses	见附件 7	2	考查 Term Paper	2-4	
总计 Total			12			

3、**学科基础课程** (Disciplinary Fundamental Courses)：856 **学时**（856 Hours)，53.5 **学分** (53.5 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR120040	遥感科学与技术专业导论 Introduction to Remote Sensing Science and Technology	16	1	16			考查 Term Paper	1	
DR191001	高等数学 A（1） Advanced Mathematics A(1)	96	6	96			考试 Exam	1	
DR191002	高等数学 A（2） Advanced Mathematics A(2)	96	6	96			考试 Exam	2	
DR192005	线性代数 Linear Algebra	32	2	32			考试 Exam	3	
DR192006	概率论与数理统计 Probabilistic and Mathematics Statistic	48	3	48			考试 Exam	4	
DR191008	大学物理（1） College Physics (1)	48	3	48			考试 Exam	2	
DR192009	大学物理（2） College Physics (2)	48	3	48			考试 Exam	3	
DR011036	地球科学概论 Geosciences	64	4	32	32		考试 Exam	2	
SR121102	数字地形测量学 Digital Topographic Surveying	64	4	40	24		考试 Exam	2	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR021029	工程力学 B Engineering Mechanics	56	3.5	52	4		考试 Exam	3	
DR042126	电子电工技术 A Electrical and Electronic Technology A	64	4	50	14		考试 Exam	3	
DR122003	测绘学概论 Introduction to Geomatics	16	1	16			考试 Exam	3	
SR122104	大地测量学基础 Foundation of Geodesy	48	3	36	12		考试 Exam	4	
SR122101	误差理论与测量平差基础 Error Theory and Foundation of Surveying Adjustment	56	3.5	44	12		考试 Exam	4	
SR122103	GNSS 测量原理及其应用 GNSS Surveying Principles and Application	40	2.5	28	12		考试 Exam	4	
DR123074	数据结构 Data Structure	32	2	22	10		考试 Exam	4	
DR122073	计算机图形学 Computer Graphics	32	2	22	10		考试 Exam	5	
总计 Total		856	53.5	726	130				

4、**专业核心课程** (Core Professional Courses)：408 学时 (408 hours)，25.5 学分 (25.5 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
SR123105	地图制图学基础 Foundation of Cartography	32	2	26	6		考试 Exam	5	
SR123106	地理信息系统原理 A Geographic Information System A	48	3	30	18		考试 Exam	5	
SR122128	遥感物理基础 Remote Sensing Physics Foundation	32	2	24	8		考试 Exam	4	
SR122129	航空与航天数据获取 Aviation and Aerospace Data Acquisition	24	1.5	16	8		考试 Exam	3	
SR123017	遥感原理与应用（双语） Principles and Applications of Remote Sensing(bilingual)	32	2	24	8		考试 Exam	4	
SR123113	测绘程序设计与实践 Comprehensive Programming Practice of Surveying and Mapping	48	3	24	24		考试 Exam	5	
SR123109	摄影测量学 Photogrammetry	48	3	32	16		考试 Exam	6	
SR122130	数字图像处理 Digital Image Processing	32	2	24	8		考试 Exam	4	
SR123131	遥感图像解译 Remote Sensing Image Interpretation	16	1	8	8		考试 Exam	5	
SR123110	激光雷达技术与地学应用（双语） LiDAR: Principles and Geo-application	32	2	24	8		考试 Exam	6	
SR123111	InSAR 技术与地质灾害监测应用 InSAR: Principles and Application in Geological Hazard	32	2	24	8		考试 Exam	6	
SR123114	人工智能与地学大数据 Artificial Intelligence and Geoscience Big Data	32	2	24	8		考试 Exam	6	
总计 Total		408	25.5	280	128		考试 Exam		

5、**专业拓展课程** (Specialized Development Courses)：128 **学时** (128 hours)，8 **学分** (8 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR192018	复变函数与积分变换 Complex Variable Function and Integral Transformations	48	3	48			考试 Exam	4	
SS123117	遥感技术与地学应用 Remote Sensing Technology and Geoscience Application	32	2	24	8		考查 Term Paper	6	
SS122115	自然资源调查与管理 Natural Resources Investigation and Management	32	2	32			考查 Term Paper	3	
SS123116	地质灾害监测与预警预报 Geological Disaster Monitoring and Early Warning Forecast	32	2	24	8		考查 Term Paper	6	
SS122119	测绘专业英语 Specialty English for Surveying and Mapping	24	1.5	24			考查 Term Paper	4	
SR122042	土地管理学 Land Management	48	3	42	6		考试 Exam	3	
SR122045	土地资源学 Land Resources Science	48	3	36	12		考试 Exam	3	
SR123141	国土空间规划 Territorial Spatial Planning	48	3	32	16		考试 Exam	5	
SR123132	自然资源登记 Natural Resource Registration	32	2	26	6		考试 Exam	6	
SR123108	海洋测绘 Hydrographic Surveying and Charting	32	2	20	12		考试 Exam	5	
SS124120	科研论文写作与实践 Research Paper Writing and Practice	32	2	24	8		考查 Term Paper	7	
总计 Total		408	25.5	332	76				

6、**课程实践** (Practice Course)：33 **周** +48 **学时** (33 weeks and 48 hours)，30 **学分** (30 Credits)

课程代码 Course Code	课程名称 Course Name	周数（学时） Week(hour)	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
PR311003	军事技能训练 Military Theory and Practice	2 周	1	考查 Term Paper	1 夏	
PR181010	思想政治社会实践 Political Social Practice	32	2	考查 Term Paper	1 夏	
PR011044	北戴河地质实习 Geological Practice in Beidaihe	2 周	2	考查 Term Paper	1 夏	
PR191045	实验物理（1） Physics Experiments （1）	24 学时	1	考试 Exam	2	
PR192046	实验物理（2） Physics Experiments （2）	24 学时	1	考试 Exam	3	
PR121121	数字地形测量实习 Topographic Surveying Practice	4 周	4	考查 Term Paper	1 夏	
PR123123	摄影测量课程设计与实习 Course design and practice of Photogrammetry	2.5 周	2.5	考查 Term Paper	3 夏	
PR123124	地理信息工程课程设计与实践 Course design and practice of Geographic Information Engineering	1.5 周	1.5	考查 Term Paper	5	
PR123133	数字图像处理与遥感图像解译实习 Digital Image Processing and Remote Sensing Image Interpretation Practice	2 周	2	考查 Term Paper	5	
PR124134	人工智能与地学大数据实习 Artificial Intelligence and Geoscience Big Data Practice	2 周	2	考查 Term Paper	7	
PR123135	遥感原理与地学应用实习 Remote Sensing Practice	2 周	2	考查 Term Paper	5	
PR124125	地质环境与灾害监测综合实习 Comprehensive Practice of Geological Environment and Disaster Monitoring	3 周	3	考查 Term Paper	7	
PR124126	毕业设计（论文） Graduation Design (Thesis)	12 周	6	考查 Term Paper	8	
总计 Total		33 周 +80 学时	30			

7、**课外实践** (Extracurricular practice)：6 **学分** (6 Credits)

包括主题教育活动、社会实践、志愿服务、勤工助学、学科竞赛、文体活动、创新创业活动、劳动实践等，其学分的认定按照教务处相关规定执行。

Extracurricular practice include Theme Education, Social Practice, Volunteer Service, Work-study Program, Discipline Competition, Cultural and Sports Activities, Innovative and Entrepreneurial Activities, Labor Practice and so on. The recognition of the credits for extracurricular practice shall be implemented according to the regulations of Academic Affairs Office.

土地整治工程专业培养方案

一、专业培养目标

本专业面向国家需求，围绕生态文明建设需要，培养德、智、体、美、劳全面发展，适应国土整治与生态修复发展，掌握扎实的地学、资源学、生态学和工程学的理论基础，具备国土整治与生态修复勘察测绘、调查评价和规划、土地信息技术应用、工程设计与施工等基本技能，具有较强的工程创新精神，毕业后可在农业农村、自然资源、生态环境、城建、水利等部门从事国土整治与生态修复工作的复合型高级工程技术人才。经过 5 年的实际工作，能够承担国土整治与生态修复等领域的生产、教育、科研和管理等工作。

二、毕业要求

土地整治工程本科毕业生应达到如下技能、知识、能力和素质的要求：

（1）具有人文科学社会素养、社会责任感和工程职业道德。

（2）具有从事土地整治工程工作所需的自然科学、信息技术、外语以及经济管理等方面的知识。

（3）掌握土地整治工程基础知识和本专业的基本理论知识，具有系统的工程实践学习经历，了解本专业的发展历史、发展前沿和发展趋势。

（4）具备实施工程实践的能力，并能对其结果进行分析和初步处理。

（5）掌握基本的创新方法，具有追求创新的科学态度和意识；具有综合运用理论和技术手段设计系统和过程能力；在工程设计过程中能够综合、系统地考虑经济、环境、法律、社会、安全、健康、伦理等因素。

（6）掌握文献检索、资料查询、规范使用及运用现代信息技术获取相关信息的基本方法，具有初步的科学研究与实际工作能力。

（7）了解与本专业相关的职业和行业的规划、设计、生产、研究开发、环境保护和持续发展等方面的方针、政策、法律、法规，具备正确认识工程对客观世界和社会影响的能力。

（8）具备一定的调查研究与决策、组织与管理、语言与文字表达、人际沟通与交往以及在团队中发挥作用的能力。

（9）对终身学习有正确认识，具有不断学习和适应发展的能力。

（10）具有国际视野和创新思维，以及跨文化的交流、竞争与合作能力。

三、主干学科

农业工程、生态学、农业资源与环境。

四、学制与学位

学制四年。学生修满规定的最低毕业学分，达到毕业要求后，授予工学学士学位。

五、核心课程

土地资源学、土壤学、土地生态学、地籍管理、土地勘测工程、土地整治学、土地复垦学、土地规划设计、生态修复工程、土地工程概预算与项目管理。

Undergraduate Program in Land Consolidation Engineering

1. Academic Objectives

Being oriented to the national development, based on the needs of ecological civilization construction, this major cultivate the all-round development students of morality, intelligence, physical education, beauty and labor. Adapting to the development of land consolidation and ecological restoration, the students need master the solid theoretical basis of geosciences, resources science, ecology and engineering science, have the ability of land consolidation and ecological restoration survey and mapping, investigation and evaluation, planning and design, land information technology application, and possess strong engineering innovation spirit. After graduation, he can be a compound senior technical personnel engaged in land consolidation and ecological restoration in agriculture and rural areas, natural resources, ecological environment, urban construction, water conservancy and other departments. After five years of practical work, he was able to undertake the production, education, scientific research and management work in land consolidation and ecological restoration field.

2. Graduation Requirements

Undergraduate graduates of land consolidation engineering should meet the following requirements for skills, knowledge, ability and quality:

(1) Possess humanities, social literacy, social responsibility and engineering professional ethics.

(2) Have the knowledge of natural science, information technology, foreign language and economic management required for land consolidation works.

(3) Master the basic knowledge of land consolidation engineering and the basic theoretical knowledge of the specialty, have systematic engineering practice learning experience, and understand the development history, development frontier and development trend of the specialty.

(4) Have the ability to implement engineering practice, and be able to preliminarily analyze and process the results.

(5) Master the basic innovation methods and have the scientific attitude and consciousness of pursuing innovation; Have the ability to comprehensively use theoretical and technical means to design systems and processes; In the process of engineering design, economic, environmental, legal, social, safety, health, ethics and other factors can be comprehensively and systematically considered.

(6) Master the basic methods of literature retrieval, data query, and standardized use modern information technology to obtain relevant information, and have the ability of preliminary scientific research and practical work.

(7) Understand the guidelines, policies, laws and regulations on planning, design, production, research, environmental protection and sustainable development of the profession and industry related to the specialty, and have the ability to correctly understand the impact of the project on the objective world and society.

(8) Have certain abilities in investigation, research and decision-making, organization and management, language and written expression, interpersonal communication and communication, and play a role in the team.

(9) Have a correct understanding of lifelong learning and have the ability to continuously learn and adapt to development.

(10) Have international vision and innovative thinking, as well as cross-cultural communication, competition and cooperation ability.

3. Main disciplines

Agricultural Engineering, Ecology, Agricultural resources and environment.

4. Length of Schooling and Degree

Four-year academic period, Degree to Be Conferred: Bachelor of Engineering.

5. Core Courses

Land Resources, Soil Science, Land Ecology, Cadastral Management, Land Survey Engineering, Land Consolidation, Land Reclamation, Land Planning and Design, Ecological Restoration Engineering, Land Engineering Budget and Project Management.

六、最低毕业总学分要求及学分分配 (Minimum Required Credits and Distribution)

课程模块 Course module	课程类别 Course Classification	学时数 Hours	学分 Credits	学 期 Semester										
				1	2	1 夏	3	4	2 夏	5	6	3 夏	7	8
通识教育 Liberal Education	通识教育必修课程 Required Courses of General Education	698	38	9.25	11.25	1	4.25	8.25		2.25	1.25		0.25	0.25
	通识教育选修课程 Selective Courses of General Education	192	12											
专业教育 Professional Education	学科基础课程 Disciplinary Fundamental Courses	784	49	10	13.5		14.5	8		3				
	专业核心课程 Specialized Fundamental Courses	576	36				3	6		12	10.5		4.5	
	专业拓展课程 Specialized Development	96	6											
实践教育 Practical Education	课程实践 Course Practice	28 周 +80 学时	25		2	6	1		5			6		6
	课外实践 Extracurricular practice		6											
必修课总学分 Required course credits				148										
选修课总学分 Elective course credits				24										
最低毕业总学分 Total Credits				172										

七、课程设置 (Curriculum)

1、通识教育必修课程 (Required Courses of General Education)：698 学时 (698 Hours)，38 学分 (38 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR181009	思想道德与法治 Ideological Morality and Rule of Law	48	3	40	8		考试 Exam	1	
GR181008	中国近现代史纲要 Essentials of Modern Chinese History	48	3	40	8		考试 Exam	2	
GR182014	马克思主义基本原理 Fundamental Principles of Marxism	48	3	40	8		考试 Exam	3	
GR182024	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thoughts and Theoretical System of the Chinese Characteristic Socialism	32	2	32			考试 Exam	4	
GR182022	习近平新时代中国特色社会主义思想概论 Introduction to Xi Jinping Thoughts on Socialism with Chinese Characteristics in the New Era	48	3	48			考试 Exam	5	
GR181013	形势与政策 (1) Situation and Policy(1)	4	0.25	4			考查 Term Paper	1	
GR181014	形势与政策 (2) Situation and Policy(2)	4	0.25	4			考查 Term Paper	2	
GR181015	形势与政策 (3) Situation and Policy(3)	4	0.25	4			考查 Term Paper	3	
GR181016	形势与政策 (4) Situation and Policy(4)	4	0.25	4			考查 Term Paper	4	
GR181017	形势与政策 (5) Situation and Policy(5)	4	0.25	4			考查 Term Paper	5	
GR181018	形势与政策 (6) Situation and Policy(6)	4	0.25	4			考查 Term Paper	6	
GR181019	形势与政策 (7) Situation and Policy(7)	4	0.25	4			考查 Term Paper	7	
GR181020	形势与政策 (8) Situation and Policy(8)	4	0.25	4			考查 Term Paper	8	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR301004	大学生职业生涯规划与就业指导（1） Career Planning and Employment Guidance for University Students (1)	20	1	16	4		考试 Exam	2	
GR303005	大学生职业生涯规划与就业指导（2） Career Planning and Employment Guidance for University Students (2)	18	1	12	6		考试 Exam	6	
GR301005	大学生心理素质教育（1） Mental Health (1)	16	1	16			考查 Term Paper	1	
GR303006	大学生心理素质教育（2） Mental Health (2)	16	1	16			考查 Term Paper	5	
GR302008	军事理论 Military Theory	36	1	36			考试 Exam	3	
GR081071	大学英语（1） College English(1)	64	4	64			考试 Exam	1	
GR081072	大学英语（2） College English(2)	32	2	32			考试 Exam	2	
GR081067	大学英语素质拓展课 Competence-oriented Education for College English	32	2	32			考试 Exam	2	
GR141005	体育（1）（系列课程） Physical Education (1)	32	1		32		考试 Exam	1	
GR141006	体育（2）（系列课程） Physical Education(2)	32	1		32		考试 Exam	2	
GR142007	体育（3）（系列课程） Physical Education(3)	32	1		32		考试 Exam	3	
GR142008	体育（4）（系列课程） Physical Education(4)	32	1		32		考试 Exam	4	
GR041003	程序设计基础 A Fundamentals of Programming A	64	4	24	24	16	考试 Exam	2	
总计 Total		698	38	476	206	16			

2、**通识教育选修** (Selective Courses of General Education)：192 **学时** (192Hours)，12 **学分** (12 Credits)

序号 No.	课程类别 Courses Classification	课程名称 Courses Name	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
1	人文社科类（含在线课程） Humanities and Social Sciences Courses (Inc. Online courses)	见附件 1	7	考查 Term Paper	2-8	4 个类别中选修 7 个学分，其中，《大学生安全教育》（1 学分）必选。
2	自然科学类（含在线课程） Natural Science Courses (Inc. Online Courses)	见附件 2		考查 Term Paper	2-8	
3	自然文化类 Natural Culture Courses	见附件 3		考查 Term Paper	2-8	
4	体育与健康类 Sports and Health Courses	见附件 4		考查 Term Paper	5-8	
5	创新创业教育类（含在线课程） Innovation and Entrepreneurship Courses (Inc. Online Courses)	见附件 5、6	3	考查 Term Paper	2-8	选修 3 个学分，其中《新生研讨课》（1 学分）必选。
6	审美与艺术类 Aesthetics and Art Courses	见附件 7	2	考查 Term Paper	2-4	
总计 Total			12			

3、**学科基础课程** (Disciplinary Fundamental Courses)：784 **学时**（784 Hours)，49 **学分** (49 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR120039	土地整治工程专业导论 Introduction to Land Consolidation Engineering	16	1	16			考查 Term Paper	1	
DR191003	高等数学 B（1） Advanced Mathematics B(1)	96	6	96			考试 Exam	1	
DR191004	高等数学 B（2） Advanced Mathematics B(2)	64	4	64			考试 Exam	2	
DR192005	线性代数 Linear Algebra	32	2	32			考试 Exam	3	
DR192006	概率论与数理统计 Probability and Mathematics Statistic	48	3	48			考试 Exam	4	
DR191008	大学物理（1） College Physics (1)	48	3	48			考试 Exam	2	
DR192009	大学物理（2） College Physics (2)	48	3	48			考试 Exam	3	
DR011036	地球科学概论 Geosciences	64	4	32	32		考试 Exam	2	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR021224	工程图学 B Engineering Drawing B	48	3	48			考试 Exam	1	
DR122001	测量学 A Surveying	40	2.5	24	16		考试 Exam	2	
DR021029	工程力学 Engineering Mechanics	56	3.5	52	4		考试 Exam	3	
DR023229	土力学 Soil Mechanics	48	3	40	8		考试 Exam	5	
DR122031	土壤学 Soil Science	48	3	36	12		考试 Exam	3	
DR122136	遥感原理与应用 Principles and Applications of Remote Sensing	48	3	32	16		考试 Exam	4	
DR122137	地理信息系统原理 B Principles of Geographic Information System B	48	3	24	24		考试 Exam	3	
DR122138	农学概论 Introduction to Agronomy	32	2	32			考试 Exam	4	
总计 Total		784	49	672	112				

4、**专业核心课程** (Core Professional Courses)：576 学时 (576 hours)，36 学分 (36 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
SR122047	地籍管理 Cadastral Management	48	3	32	16		考试 Exam	4	
SR123139	土地工程制图 Land Engineering Drawing	48	3	20	28		考试 Exam	5	
SR123140	农田水利学 Irrigation and Drainage Engineering	32	2	24	8		考试 Exam	6	
SR122045	土地资源学 Land Resources	48	3	36	12		考试 Exam	3	
DR123035	土地生态学 Land Ecology	48	3	40	8		考试 Exam	5	
DR123061	土地勘测工程 Land Exploration and Survey Engineering	48	3	30	18		考试 Exam	4	
SR123142	土地整治学 A Land Consolidation	48	3	40	8		考试 Exam	5	
SR123067	土地复垦学 Land Reclamation	48	3	32	16		考试 Exam	6	
SR123141	国土空间规划 Territorial Spatial Planning	48	3	32	16		考试 Exam	5	
SR123066	土地规划设计 Land Planning and Design	48	3	32	16		考试 Exam	6	
SR124144	生态修复工程 Ecological Restoration Engineering	40	2.5	32	8		考试 Exam	7	
SR123145	土地工程概预算与项目管理 Land Engineering Budget and Project Management	40	2.5	32	8		考试 Exam	6	
SR124069	土地整治工程专业英语 English for Land Consolidation Engineering	32	2	32			考查 Term Paper	7	
总计 Total		576	36	414	162				

5、**专业拓展课程** (Specialized Development Courses)：96 **学时** (96 hours)，6 **学分** (6 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
SR123065	环境影响评价 Environmental Impact Assessment	32	2	26	6		考查 Term Paper	5	
SR123063	水土保持学 Soil and Water Conservation	32	2	28	4		考查 Term Paper	5	
SR122042	土地管理学 Land Management	48	3	42	6		考试 Exam	3	
SR123132	自然资源登记 Natural Resources Registration	32	2	26	6		考试 Exam	6	
DR124040	房地产经营与管理 Operation and Management of Real Estate	32	2	24	8		考试 Exam	7	
SS122115	自然资源调查与管理 Survey and Management of Natural Resource	32	2	32			考查 Term Paper	3	
SR123114	人工智能与地学大数据 Artificial Intelligence and Geoscience Big Data	32	2	24	8		考试 Exam	6	
SS123117	遥感技术与地学应用 Remote sensing technology and geoscience application	32	2	24	8		考查 Term Paper	6	
SS124120	科研论文写作与实践 Research Paper Writing and Practice	32	2	24	8		考查 Term Paper	7	
总计 Total		304	19	250	54				

6、**课程实践** (Practice Course)：28 **周** +48 **学时** (28 weeks and 48 hours)，25 **学分** (25 Credits)

课程代码 Course Code	课程名称 Course Name	周数（学时） Week(hour)	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
PR311003	军事技能训练 Military Theory and Practice	2 周	1	考查 Term Paper	1	
PR181010	思想政治社会实践 Political Social Practice	32 学时	2	考查 Term Paper	1 夏	
PR011044	北戴河地质实习 Geological Practice in Beidaihe	2 周	2	考查 Term Paper	1 夏	
PR191045	实验物理（1） Physics Experiments（1）	24 学时	1	考试 Exam	2	
PR192046	实验物理（2） Physics Experiments（2）	24 学时	1	考试 Exam	3	
PR122059	测量实习 Surveying Practice	1 周	1	考查 Term Paper	2	
PR122146	土地整治调查与测量实习 Surveying Practice of Land Consolidation	5 周	5	考查 Term Paper	2 夏	
PR120375	土地规划设计实习 Practice of Land Planning and Design	4 周	4	考查 Term Paper	3 夏	
PR123070	土地整治野外综合实习 Field Comprehensive Practice of Land Consolidation	2 周	2	考查 Term Paper	3 夏	
PR124072	毕业设计（论文） Graduation Design (Thesis)	12 周	6	考查 Term Paper	8	
总计 Total		28 周 +80 学时	25			

7、**课外实践** (Extracurricular practice)：6 **学分** (6 Credits)

包括主题教育活动、社会实践、志愿服务、勤工助学、学科竞赛、文体活动、创新创业活动、劳动实践等，其学分的认定按照教务处相关规定执行。

Extracurricular practice include Theme Education, Social Practice, Volunteer Service, Work-study Program, Discipline Competition, Cultural and Sports Activities, Innovative and Entrepreneurial Activities, Labor Practice and so on. The recognition of the credits for extracurricular practice shall be implemented according to the regulations of Academic Affairs Office.

土地资源管理专业培养方案

一、专业培养目标

本专业面向国家土地资源管理和生态文明建设需求，贯彻立德树人根本任务，培养德、智、体、美、劳全面发展，适应生态文明建设背景下的土地管理需要，具备现代管理学、经济学及资源学的基本理论，掌握土地资源管理基本知识，具有“测、绘、规、估、籍、登、管”应用能力，熟悉国家土地政策和法规，满足自然资源、城乡建设、农业农村、房地产以及相关领域管理和研究需要的复合型人才。经过 5 年的实际工作，能够胜任自然资源调查评价、国土空间规划和生态保护修复的要求。

二、毕业要求

本专业毕业学生应树立和践行社会主义核心价值观，掌握土地资源管理方面的基础理论、基本知识和基本方法，具备人文社会科学和自然科学的基本知识，掌握土地调查、评价、规划，土地信息技术应用，地籍管理，不动产估价，不动产登记，土地管理以及开发经营的技术；掌握文献检索和分析方法，熟悉国家土地利用管理的方针、政策、法规和发展趋势，具有较强的社会调查、语言表达与写作能力，能胜任土地资源管理学科教学、科研、管理与实践等方面的工作。

三、主干学科

公共管理、测绘科学与技术。

四、学制与学位

学制四年。学生修满规定的最低毕业学分，达到毕业要求后，授予工学学士学位。

五、核心课程

管理学原理、土地法学、土地经济学、土地管理学、土地资源学、地理信息系统原理、国土空间规划、地籍管理、测量学、土地整治学等。

Undergraduate Program in Land Resource Management

1. Academic Objectives

This major is oriented to the needs of national land resource management and ecological civilization construction, and implements the fundamental task of cultivating talented people with high moral standards and the comprehensive development of morality, intelligence, sport, aesthetics, and labor, adapting to the needs of land management under the background of ecological civilization construction, and possess the basic theories of modern management, economics and resource science, and master the basic knowledge of land resource management, with inter-disciplinary talents of "land survey, mapping, planning, evaluation, cadastral survey, registration, management" application capabilities, familiar with national land policies and regulations, and meeting the management and research needs of natural resources, urban construction, agriculture, real estate and related fields. After 5 years of practical work, the graduates can meet the requirements of natural resource survey and monitoring, land and space optimization management and ecological protection and restoration.

2. Graduation Requirements

The graduates need to establish and practice the core values of socialism, and grasp fundamental theory, knowledge and methodology in land resources management, by obtaining the basic knowledge of humanities social sciences and natural science, by training the skills of land survey, evaluation, planning, land information technology, cadastral management, real estate appraisal and registration, land management, and real estate development and operation, by mastering the methods of information retrieval and analysis, and by well knowing national policies, laws, regulations and developmental trends in land use and management. The graduates will have the strong ability of social survey, language expression and writing to be fully qualified for education, scientific research, management and practice in land resources management.

3. Main disciplines

Public management. Surveying and Mapping Science and Technology.

4. Length of Schooling and Degree

The length of schooling is four years of full-time study. Students will be awarded the Bachelor Degree of Engineering when they have completed the required minimum credits and have met all other requirements.

5. Core Courses

Principles of management, Land Law, Land Economics, Land Management, Land Resources Science, Principles of Geographic Information Systems, Introduction to Territory Spatial Planning, Cadastral Management, Surveying, Land Consolidation etc.

六、最低毕业总学分要求及学分分配 (Minimum Required Credits and Distribution)

课程模块 Course module	课程类别 Course Classification	学时数 Hours	学分 Credits	学 期 Semester										
				1	2	1 夏	3	4	2 夏	5	6	3 夏	7	8
通识教育 Liberal Education	通识教育必修课程 Required Courses of General Education	698	38	9.25	11.25	1	4.25	8.25		2.25	1.25		0.25	0.25
	通识教育选修课程 Selective Courses of General Education	192	12											
专业教育 Professional Education	学科基础课程 Disciplinary Fundamental Courses	616	38.5	7	12.5		16	3						
	专业核心课程 Specialized Fundamental Courses	536	33.5				8	10.5		13	2			
	专业拓展课程 Specialized Development	96	6											
实践教育 Practical Education	课程实践 Course Practice	30 周 +32 学时	26		1	6		3	4	2		4		6
	课外实践 Extracurricular practice		6											
必修课总学分 Required course credits				135										
选修课总学分 Elective course credits				24										
最低毕业总学分 Total Credits				159										

七、课程设置 (Curriculum)

1、**通识教育必修课程** (Required Courses of General Education)：698 **学时** (698 Hours)，38 **学分** (38 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR181009	思想道德与法治 Ideological Morality and Rule of Law	48	3	40	8		考试 Exam	1	
GR181008	中国近现代史纲要 Essentials of Modern Chinese History	48	3	40	8		考试 Exam	2	
GR182014	马克思主义基本原理 Fundamental Principles of Marxism	48	3	40	8		考试 Exam	3	
GR182024	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thoughts and Theoretical System of the Chinese Characteristic Socialism	32	2	32			考试 Exam	4	
GR182022	习近平新时代中国特色社会主义思想概论 Introduction to Xi Jinping Thoughts on Socialism with Chinese Characteristics in the New Era	48	3	48			考试 Exam	5	
GR181013	形势与政策 (1) Situation and Policy(1)	4	0.25	4			考查 Term Paper	1	
GR181014	形势与政策 (2) Situation and Policy(2)	4	0.25	4			考查 Term Paper	2	
GR181015	形势与政策 (3) Situation and Policy(3)	4	0.25	4			考查 Term Paper	3	
GR181016	形势与政策 (4) Situation and Policy(4)	4	0.25	4			考查 Term Paper	4	
GR181017	形势与政策 (5) Situation and Policy(5)	4	0.25	4			考查 Term Paper	5	
GR181018	形势与政策 (6) Situation and Policy(6)	4	0.25	4			考查 Term Paper	6	
GR181019	形势与政策 (7) Situation and Policy(7)	4	0.25	4			考查 Term Paper	7	
GR181020	形势与政策 (8) Situation and Policy(8)	4	0.25	4			考查 Term Paper	8	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR301004	大学生职业生涯规划与就业指导（1） Career Planning and Employment Guidance for University Students (1)	20	1	16	4		考试 Exam	2	
GR303005	大学生职业生涯规划与就业指导（2） Career Planning and Employment Guidance for University Students (2)	18	1	12	6		考试 Exam	6	
GR301005	大学生心理素质教育（1） Mental Health (1)	16	1	16			考查 Term Paper	1	
GR303006	大学生心理素质教育（2） Mental Health (2)	16	1	16			考查 Term Paper	5	
GR302008	军事理论 Military Theory	36	1	36			考试 Exam	3	
GR081071	大学英语（1） College English(1)	64	4	64			考试 Exam	1	
GR081072	大学英语（2） College English(2)	32	2	32			考试 Exam	2	
GR081067	大学英语素质拓展课 Competence-oriented Education for College English	32	2	32			考试 Exam	2	
GR141005	体育（1）（系列课程） Physical Education (1)	32	1		32		考试 Exam	1	
GR141006	体育（2）（系列课程） Physical Education(2)	32	1		32		考试 Exam	2	
GR142007	体育（3）（系列课程） Physical Education(3)	32	1		32		考试 Exam	3	
GR142008	体育（4）（系列课程） Physical Education(4)	32	1		32		考试 Exam	4	
GR041003	程序设计基础 A Fundamentals of Programming A	64	4	24	24	16	考试 Exam	2	
总计 Total		698	38	476	206	16			

2、**通识教育选修** (Selective Courses of General Education)：192 **学时** (192Hours)，12 **学分** (12 Credits)

序号 No.	课程类别 Courses Classification	课程名称 Courses Name	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
1	人文社科类（含在线课程） Humanities and Social Sciences Courses (Inc. Online courses)	见附件 1	7	考查 Term Paper	2-8	4 个类别中选修 7 个学分，其中，《大学生安全教育》（1 学分）必选。
2	自然科学类（含在线课程） Natural Science Courses (Inc. Online Courses)	见附件 2		考查 Term Paper	2-8	
3	自然文化类 Natural Culture Courses	见附件 3		考查 Term Paper	2-8	
4	体育与健康类 Sports and Health Courses	见附件 4		考查 Term Paper	5-8	
5	创新创业教育类（含在线课程） Innovation and Entrepreneurship Courses (Inc. Online Courses)	见附件 5、6	3	考查 Term Paper	2-8	选修 3 个学分，其中《新生研讨课》（1 学分）必选。
6	审美与艺术类 Aesthetics and Art Courses	见附件 7	2	考查 Term Paper	2-7	
总计 Total			12			

3、学科基础课程 (Disciplinary Fundamental Courses)：616 学时（616 Hours)，38.5 学分 (38.5 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR120037	土地资源管理专业导论 Introduction to Land Resources Management	16	1	16			考查 Term Paper	1	
DR191003	高等数学 B(1) Advanced Mathematics B(1)	96	6	96			考试 Exam	1	
DR191004	高等数学 B(2) Advanced Mathematics B(2)	64	4	64			考试 Exam	2	
DR192005	线性代数 Linear Algebra	32	2	32			考试 Exam	3	
DR011036	地球科学概论 Introduction to Earth Science	64	4	32	32		考试 Exam	2	
DR122001	测量学 A Surveying	40	2.5	24	16		考试 Exam	2	
DR121147	民法学 Civil Law	32	2	32			考试 Exam	2	
DR192006	概率论与数理统计 Probability and Mathematics Statistic	48	3	24	24		考试 Exam	3	
DR071057	经济学原理 Principle of Economics	48	3	48			考试 Exam	3	
DR072141	管理学原理 Principle of Management	32	2	32			考试 Exam	3	
DR122137	地理信息系统原理 B Principles of Geographic Information Systems	48	3	20	28		考试 Exam	3	
DR122031	土壤学 Soil Science	48	3	36	12		考试 Exam	3	
DR122136	遥感原理与应用 Principles and Applications of Remote Sensing	48	3	32	16		考试 Exam	4	
总计 Total		616	38.5	488	128				

4、**专业核心课程** (Core Professional Courses)：536 学时 (536 hours)，33.5 学分 (33.5 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
SR122042	土地管理学 Land Management	48	3	42	6		考试 Exam	3	
SR122043	土地法学（含不动产法学） Land Law	32	2	32			考试 Exam	3	
SR122045	土地资源学 Land Resources Science	48	3	36	12		考试 Exam	3	
SR122047	地籍管理 Cadastral Management	48	3	32	16		考试 Exam	4	
SR122046	土地经济学（含房地产经济学） Land Economics	48	3	48			考试 Exam	4	
DR122148	地籍测量学 Cadastral Survey	40	2.5	26	14		考试 Exam	4	
SR122151	自然资源评价 Natural Resource Evaluation	32	2	26	6		考试 Exam	4	
DR123035	土地生态学 Land Ecology	48	3	40	8		考试 Exam	5	
SR123141	国土空间规划 Territorial Spatial Planning	48	3	32	16		考试 Exam	5	
DR123149	城乡详细规划 Urban-Rural Detailed Planning	32	2	16	16		考试 Exam	5	
SR123143	土地整治学 B Land Consolidation B	32	2	24	8		考试 Exam	5	
SR123050	不动产估价 Real Estate Appraisal	48	3	38	10		考试 Exam	5	
DR123150	不动产登记 Real Estate Registration	32	2	28	4		考试 Exam	6	
总计 Total		536	33.5	420	116				

5、**专业拓展课程** (Specialized Development Courses)：96 **学时** (96 hours)，6 **学分** (6 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
SS122115	自然资源调查与管理 Natural Resources Investigation and Management	32	2	32			考查 Term Paper	3	
SR123140	农田水利学 Irrigation and Drainage Engineering	32	2	24	8		考试 Exam	6	
SR123065	环境影响评价 Environmental Impact Assessment	32	2	26	6		考查 Term Paper	5	
SR123066	土地规划设计 Land Planning and Design	48	3	32	16		考试 Exam	6	
SR123145	土地工程概预算与项目管理 Land Engineering Budget and Project Management	32	2	24	8		考试 Exam	6	
SR123114	人工智能与地学大数据 Artificial Intelligence and Geoscience Big Data	32	2	24	8		考试 Exam	6	
SS123117	遥感技术与地学应用 Remote sensing technology and geoscience application	32	2	24	8		考查 Term Paper	6	
DR124038	土地资源管理专业英语 Professional English for Land Resources Management	32	2	32			考试 Exam	6	
DR124040	房地产经营与管理 Real Estate Investment and Management	32	2	24	8		考试 Exam	7	
SR124144	生态修复工程 Ecological Restoration Engineering	40	2.5	32	8		考试 Exam	7	
SS124120	科研论文写作与实践 Research Paper Writing and Practice	32	2	24	8		考查 Term Paper	7	
总计 Total		376	23.5	298	78				

6、**课程实践** (Practice Course)：30 **周** +32 **学时** (30 weeks and 32 hours)，25 **学分** (25 Credits)

课程代码 Course Code	课程名称 Course Name	周数（学时） Week(hour)	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
PR311003	军事技能训练 Military Theory and Practice	2 周	1	考查 Term Paper	1	
PR181010	思想政治社会实践 Political Social Practice	32 学时	2	考查 Term Paper	1 夏	
PR011044	北戴河地质实习 Geological Survey Field Trip in Beidaihe	2 周	2	考查 Term Paper	1 夏	
PR122059	测量实习 Surveying Practice	1 周	1	考查 Term Paper	2	
PR122053	土地信息技术应用实习 Applications of Land Information Technologies	3 周	3	考查 Term Paper	4	
PR122152	土地调查与评价实习 Land Survey and Evaluation Practice	4 周	4	考查 Term Paper	2 夏	
PR123056	不动产估价实习 Real Estate Appraisal Practice	2 周	2	考查 Term Paper	5	
PR120374	国土空间规划实习 Practice of Territory Spatial Planning	4 周	4	考查 Term Paper	3 夏	
PR124058	毕业设计（论文） Graduation Design (Thesis)	12 周	6	考查 Term Paper	8	
总计 Total		30 周 +32 学时	25			

7、**课外实践** (Extracurricular practice)：6 **学分** (6 Credits)

包括主题教育活动、社会实践、志愿服务、勤工助学、学科竞赛、文体活动、创新创业活动、劳动实践等，其学分的认定按照教务处相关规定执行。

Extracurricular practice include Theme Education, Social Practice, Volunteer Service, Work-study Program, Discipline Competition, Cultural and Sports Activities, Innovative and Entrepreneurial Activities, Labor Practice and so on. The recognition of the credits for extracurricular practice shall be implemented according to the regulations of Academic Affairs Office.

自然资源登记与管理专业培养方案

一、专业培养目标

本专业面向国家战略发展，围绕自然资源监管和保护需要，培养德、智、体、美、劳全面发展，适应现代自然资源行业发展需求，掌握自然资源产权确定、调查、登记、管理、信息化的基本理论与技术方法，具备创新精神、实践能力和人文素养，可在自然资源管理、城乡建设、生态环境等领域从事资源与资产登记与管理工作的复合型专门人才。经过 5 年的实际工作，能够达到胜任自然资源管理领域的组织领导、技术服务、政策制定、司法工作的岗位要求。

二、毕业要求

本专业毕业学生应有正确的政治方向、良好的思想品德和健全的人格，具备人文社会科学和自然科学素养，熟悉资源科学、法学、管理学、测绘科学与技术等领域的知识体系，掌握自然资源构成要素调查、地籍管理、自然资源登记实务、权属纠纷调处、多维地籍信息化、资源资产管理等方面的基本理论、方法和技能，并熟悉本专业及相关领域最新动态和发展趋势，具备较强的社会调查、语言表达与写作能力，能够从事资源与资产登记与管理相关领域工作。

三、主干学科

公共管理、测绘科学与技术、法学。

四、学制与学位

学制四年。学生修满规定的最低毕业学分，达到毕业要求后，授予管理学学士学位。

五、核心课程

自然资源学、自然资源经济学、自然资源管理学、民法学、行政法与行政诉讼法学、自然资源管理法、不动产登记法、地籍调查与管理、地籍测量学、自然资源评价、自然资源估价、自然资源登记、地理信息系统原理等课程。

Undergraduate Program in Natural Resources Registration and Management

1. Academic Objectives

Being oriented to the development of national strategies and focused on the needs of natural resources regulation and protection, this major cultivates students for having the all-around development of moral, intellectual, physical, aesthetics and labor education, for adapting to the needs of development of modern natural resources professions, for grasping the basic theories and technical methods of delimitation, investigation, registration, management and informatization of natural resources property rights, and for having innovative spirit, practical ability and humanistic quality, with the aim at being qualified as inter-disciplinary professionals engaged in resources and assets registration and management in the fields of natural resources management, urban and rural construction and ecological environment. After 5 years of practical work, the students are able to meet the post requirements of organization and leadership, technical service, policy-making, and judicial work in the field of natural resources management.

2. Graduation Requirements

The graduates need to have qualifications for correct political direction, good ideological and moral character, sound personality and the accomplishments of humanities and social sciences and natural sciences, be familiar with the knowledge system of resource science, law, management, surveying and mapping science and technology, grasp the basic theories, methods and skills of natural resources elements investigation, cadastral management, natural resources registration practice, property rights dispute solution and mediation, multi-dimensional cadastral informatization, resources and assets management, know the latest development and trends in this major and related fields, and also have the strong ability of social investigation, language expression and writing, for being qualified and engaged in the fields of resources and assets registration and management.

3. Main disciplines

Public management, Surveying and mapping, Science of law.

4. Length of Schooling and Degree

Four-year academic period. Degree conferred: Bachelor of Management.

5. Core Courses

Natural Resources Science, Natural Resources Economics, Natural Resources Management, Civil Law, Administrative Law and Administrative Procedural Law, Natural Resources Management Law, Real Estate Registration Law, Cadastral Investigation and Management, Cadastral Surveying, Natural Resources Accounting and Evaluation, Natural Resources Appraisal, Natural Resources Registration, Principles of Geographic Information Systems, etc.

六、最低毕业总学分要求及学分分配 (Minimum Required Credits and Distribution)

课程模块 Course module	课程类别 Course Classification	学时数 Hours	学分 Credits	学 期 Semester										
				1	2	1 夏	3	4	2 夏	5	6	3 夏	7	8
通识教育 Liberal Education	通识教育必修课程 Required Courses of General Education	662	38	9.25	13.25	1	4.25	5.25		3.25	1.25		0.25	0.25
	通识教育选修课程 Selective Courses of General Education	192	12											
专业教育 Professional Education	学科基础课程 Disciplinary Fundamental Courses	848	53	7	14.5		14	8.5		5	4			
	专业核心课程 Specialized Fundamental Courses	328	20.5				2	8.5		6	4			
	专业拓展课程 Specialized Development	96	6											
实践教育 Practical Education	课程实践 Course Practice	30 周 +32 学时	25		1	6			4	2		7		6
	课外实践 Extracurricular practice		6											
必修课总学分 Required course credits				142.5										
选修课总学分 Elective course credits				18										
最低毕业总学分 Total Credits				160.5										

七、课程设置 (Curriculum)

1、**通识教育必修课程** (Required Courses of General Education)：698 **学时** (698 Hours)，38 **学分** (38 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR181009	思想道德与法治 Ideological Morality and Rule of Law	48	3	40	8		考试 Exam	1	
GR181008	中国近现代史纲要 Essentials of Modern Chinese History	48	3	40	8		考试 Exam	2	
GR182014	马克思主义基本原理 Fundamental Principles of Marxism	48	3	40	8		考试 Exam	3	
GR182024	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thoughts and Theoretical System of the Chinese Characteristic Socialism	32	2	32			考试 Exam	4	
GR182022	习近平新时代中国特色社会主义思想概论 Introduction to Xi Jinping Thoughts on Socialism with Chinese Characteristics in the New Era	48	3	48			考试 Exam	5	
GR181013	形势与政策 (1) Situation and Policy(1)	4	0.25	4			考查 Term Paper	1	
GR181014	形势与政策 (2) Situation and Policy(2)	4	0.25	4			考查 Term Paper	2	
GR181015	形势与政策 (3) Situation and Policy(3)	4	0.25	4			考查 Term Paper	3	
GR181016	形势与政策 (4) Situation and Policy(4)	4	0.25	4			考查 Term Paper	4	
GR181017	形势与政策 (5) Situation and Policy(5)	4	0.25	4			考查 Term Paper	5	
GR181018	形势与政策 (6) Situation and Policy(6)	4	0.25	4			考查 Term Paper	6	
GR181019	形势与政策 (7) Situation and Policy(7)	4	0.25	4			考查 Term Paper	7	
GR181020	形势与政策 (8) Situation and Policy(8)	4	0.25	4			考查 Term Paper	8	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR301004	大学生职业生涯规划与就业指导（1） Career Planning and Employment Guidance for University Students (1)	20	1	16	4		考试 Exam	2	
GR303005	大学生职业生涯规划与就业指导（2） Career Planning and Employment Guidance for University Students (2)	18	1	12	6		考试 Exam	6	
GR301005	大学生心理素质教育（1） Mental Health (1)	16	1	16			考查 Term Paper	1	
GR303006	大学生心理素质教育（2） Mental Health (2)	16	1	16			考查 Term Paper	5	
GR302008	军事理论 Military Theory	36	1	36			考试 Exam	3	
GR081071	大学英语（1） College English(1)	64	4	64			考试 Exam	1	
GR081072	大学英语（2） College English(2)	32	2	32			考试 Exam	2	
GR081067	大学英语素质拓展课 Competence-oriented Education for College English	32	2	32			考试 Exam	2	
GR141005	体育（1）（系列课程） Physical Education (1)	32	1		32		考试 Exam	1	
GR141006	体育（2）（系列课程） Physical Education(2)	32	1		32		考试 Exam	2	
GR142007	体育（3）（系列课程） Physical Education(3)	32	1		32		考试 Exam	3	
GR142008	体育（4）（系列课程） Physical Education(4)	32	1		32		考试 Exam	4	
GR041003	程序设计基础 A Fundamentals of Programming A	64	4	24	24	16	考试 Exam	2	
总计 Total		698	38	476	206	16			

2、**通识教育选修** (Selective Courses of General Education)：192 **学时** (192Hours)，12 **学分** (12 Credits)

序号 No.	课程类别 Courses Classification	课程名称 Courses Name	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
1	人文社科类（含在线课程） Humanities and Social Sciences Courses (Inc. Online courses)	见附件 1	7	考查 Term Paper	2-8	4 个类别中选修 7 个学分，其中，《大学生安全教育》（1 学分）必选。
2	自然科学类（含在线课程） Natural Science Courses (Inc. Online Courses)	见附件 2		考查 Term Paper	2-8	
3	自然文化类 Natural Culture Courses	见附件 3		考查 Term Paper	2-8	
4	体育与健康类 Sports and Health Courses	见附件 4		考查 Term Paper	5-8	
5	创新创业教育类（含在线课程） Innovation and Entrepreneurship Courses (Inc. Online Courses)	见附件 5、6	3	考查 Term Paper	2-8	选修 3 个学分，其中《新生研讨课》（1 学分）必选。
6	审美与艺术类 Aesthetics and Art Courses	见附件 7	2	考查 Term Paper	2-4	
总计 Total			12			

3、学科基础课程 (Disciplinary Fundamental Courses)：848 学时（848 Hours)，53 学分 (53 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR120041	自然资源登记与管理专业导论 Introduction to Natural Resources Registration and Management	16	1	16			考查 Term Paper	1	
DR191003	高等数学 B(1) Advanced Mathematics B(1)	96	6	96			考试 Exam	1	
DR191004	高等数学 B(2) Advanced Mathematics B(2)	64	4	64			考试 Exam	2	
DR011036	地球科学概论 Introduction to Earth Science	64	4	32	32		考试 Exam	2	
DR122001	测量学 A Surveying	40	2.5	24	16		考试 Exam	2	
DR121147	民法学 Civil Law	32	2	32			考试 Exam	2	
DR121154	公共管理学原理 Principles of Public Management	32	2	32			考试 Exam	2	
DR192005	线性代数 Linear Algebra	32	2	32			考试 Exam	3	
DR192006	概率论与数理统计 Probability and Mathematics Statistic	48	3	48			考试 Exam	3	
DR122155	全球卫星导航系统应用 Applications of Global Navigation Satellite System	32	2	22	10		考试 Exam	3	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
DR122175	行政法与行政诉讼法学 Administrative Law and Administrative Procedural Laz	32	2	32			考试 Exam	3	
DR122156	自然资源管理法 Natural Resources Management Law	32	2	32			考试 Exam	3	
DR122157	自然资源学 Natural Resources Science	48	3	40	8		考试 Exam	3	
DR122158	自然资源经济学 Natural Resources Economics	48	3	48			考试 Exam	4	
DR122136	遥感原理与应用 Principles and Applications of Remote Sensing	48	3	32	16		考试 Exam	4	
DR122159	土壤与植物地理学 Pedogeography and Phytogeography	40	2.5	32	8		考试 Exam	4	
SR123141	国土空间规划 Territorial Spatial Planning	48	3	32	16		考试 Exam	5	
DR123160	生态学基础 Fundamentals of Ecology	32	2	32			考试 Exam	5	
DR124041	房屋建筑学基础 Fundamentals of Housing Architecture	32	2	24	8		考试 Exam	6	
DR123161	自然资源登记与管理专业英语 Professional English for Natural Resources Registration and Management	32	2	32			考试 Exam	6	
总计 Total		816	51	702	114				

4、**专业核心课程** (Core Professional Courses)：328 学时 (328 hours)，20.5 学分 (20.5 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
SR122162	不动产登记法 Real Estate Registration Law	32	2	28	4		考试 Exam	4	
SR122163	自然资源管理学 Natural Resources Management	32	2	32			考试 Exam	3	
SR122151	自然资源评价 Natural Resources Evaluation	32	2	26	6		考试 Exam	4	
SR122164	地籍调查与管理 Cadastral Investigation and Management	32	2	26	6		考试 Exam	4	
DR122148	地籍测量学 Cadastral Surveying	40	2.5	26	14		考试 Exam	4	
DR122137	地理信息系统原理 B Principles of Geographic Information Systems B	48	3	20	28		考试 Exam	5	
SR123165	自然资源估价 Natural Resources Valuation	48	3	38	10		考试 Exam	5	
SR123166	自然资源保护与管理 Natural Resources Conservation and Management	32	2	28	4		考试 Exam	6	
SR123132	自然资源登记 Natural Resources Registration	32	2	26	6		考试 Exam	6	
总计 Total		328	20.5	250	78				

5、**专业拓展课程** (Specialized Development Courses)：96 **学时** (96 hours)，6 **学分** (6 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
SS122115	自然资源调查与管理 Natural Resources Investigation and Management	32	2	32			考查 Term Paper	3	
DR123149	城乡详细规划 Urban-Rural Detailed Planning	32	2	16	16		考试 Exam	5	
SR123105	地图制图学基础 Foundation of Cartography	32	2	32			考试 Exam	5	
SR123065	环境影响评价 Environmental Impact Assessment	32	2	26	6		考查 Term Paper	5	
SR123143	土地整治学 B Land Consolidation B	32	2	24	8		考试 Exam	5	
SR123066	土地规划设计 Land Planning and Design	48	3	32	16		考试 Exam	6	
SS123167	现代城市更新 Modern Urban Redevelopment	32	2	24	8		考查 Term Paper	6	
SR123114	人工智能与地学大数据 Artificial Intelligence and Geoscience Big Data	32	2	24	8		考试 Exam	6	
SS123117	遥感技术与地学应用 Remote sensing technology and geoscience application	32	2	24	8		考查 Term Paper	6	
SS124168	生态经济学 Ecological Economics	32	2	24	8		考查 Term Paper	7	
DR124040	房地产经营与管理 Real Estate Investment and Management	32	2	24	8		考试 Exam	7	
SS124120	科研论文写作与实践 Scientific paper writing and practice	32	2	24	8		考查 Term Paper	7	
总计 Total		400	25	306	94				

6、**课程实践** (Practice Course)：30 **周** +32 **学时** (30 weeks and 32 hours)，25 **学分** (25 Credits)

课程代码 Course Code	课程名称 Course Name	周数（学时） Week(hour)	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
PR311003	军事技能训练 Military Theory and Practice	2 周	1	考查 Term Paper	1	
PR181010	思想政治社会实践 Political Social Practice	32 学时	2	考查 Term Paper	1 夏	
PR011044	北戴河地质实习 Geological Survey Field Trip in Beidaihe	2 周	2	考查 Term Paper	1 夏	
PR122059	测量实习 Surveying Practice	1 周	1	考查 Term Paper	2	
PR122169	自然资源调查与评价实习 Natural Resources Investigation and Evaluation Practice	4 周	4	考查 Term Paper	2 夏	
PR123170	自然资源估价实习 Natural Resources Valuation Practice	2 周	2	考查 Term Paper	5	
PR123171	自然资源登记综合实习 Comprehensive Practice of Natural Resources Registration	3 周	3	考查 Term Paper	3 夏	
PR123172	自然资源综合利用与保护规划实习 Practice of Comprehensive Utilization and Conservation Planning of Natural Resources	4 周	4	考查 Term Paper	3 夏	
PR124173	毕业设计（论文） Graduation Design (Thesis)	12 周	6	考查 Term Paper	8	
总计 Total		30 周 +32 学时	25			

7、**课外实践** (Extracurricular practice)：6 **学分** (6 Credits)

包括主题教育活动、社会实践、志愿服务、勤工助学、学科竞赛、文体活动、创新创业活动、劳动实践等，其学分的认定按照教务处相关规定执行。

Extracurricular practice include Theme Education, Social Practice, Volunteer Service, Work-study Program, Discipline Competition, Cultural and Sports Activities, Innovative and Entrepreneurial Activities, Labor Practice and so on. The recognition of the credits for extracurricular practice shall be implemented according to the regulations of Academic Affairs Office.