Master of Science Program in Geoinformatics
(International Program)

Curriculum
Number of credits
Not less than   **42**   credits

Required courses	17	credits
Electives courses	13	credits
Thesis	12	credits

course

Required Courses of Faculty of Geoinformatics, Burapha University 13 credits

87852061	Remote Sensing	3(2-2-5)
87852161	Applications of Geographic Information System	3(2-2-5)
87852261	Global Navigation Satellite System	3(2-2-5)
87852361	Research Methedology in Geoinformatics	3(3-0-6)
87852461	Seminar in Geoinformatics I	1(1-0-6)

Required Courses of Wahan University   **4 credits**

87852561	Comprehensive Chinese in Daily life	2(2-2-5
87852661	Outline of China	2(2-2-5)

Electives courses of faculty of Geoinformatics, Burapha University 9 credits

87852761	Resource and Environment Management Information System	3(2-2-5)
87852861	Database Management System	3(3-0-6)
87852961	Digital Image Analysis	3(2-2-5)
87853061	Geographic Information Standards	3(3-0-6)
87853161	Land Use Management and Planning Technique	3(2-2-5)
87853261	Management of Urban and Industrial Area	3(2-2-5)
87853361	Advanced Physical Geography	3(3-0-6)
87853461	Management of Natural Disaster and Climate Change	3(2-2-5)
87853561	Environmental Impact Assessment	3(3-0-6)

Electives courses of Wahan University   **4 credits**

87853661	Seminar in Geoinformatics II	1(x-x-x)
87853761	Integrated Navigation	2(x-x-x)
87853861	Generalized Adjustment	2((x-x-x)
87853961	Principles of Photogrammetry	2(x-x-x)
87854061	Principles of Geodesy	2(x-x-x)
87854161	Advanced Topics on Remote Sensing	2(x-x-x)
87854261	Advanced Topics on GNSS	2(x-x-x)

Thesis of Wahan University   **12 credits**

87854361	Thesis Proposal	4(x-x-x)
87869961	Thesis	8(x-x-x)

Course Description

Required Courses of Burapha University   12   Credits

87852061   Remote Sensing   3(2-2-5)

Theories and principles of satellite image acquisition, characteristics of sensors and platforms for satellite data both optical and radar, remote data other systems, preparation translucent interpretation, analysis and processing of satellite image data by computer, satellite data application in various fields, advances and trends in remote sensing technology.

87852161   Applications of Geographic Information System   3(2-2-5)

Spatial data form and structures, spatial data analysis, modeling, terrain model, spatial analysis, mathematical modelling, geostatistical analysis, spatio-temporal modelling, geostatistical analysis, GIS methods in social, economic and environment aspects, application of geographic information systems in various fields, future geographic information systems.

87852261   Global Navigation Satellite System   3(2-2-5)

Rationale and background, historical development, components of the global positioning system (GPS), objective, concepts and principles of how GPS works for tracking and navigation, factors affecting performance of GPS, development from GPS to GNSS (Global Navigation Satellite System), GLONASS system of Russia, GALILEO system of Europe, Baidu system of China, GNSS application in mapping, surveying and measure, application of satellite navigation systems in various fields, future GNSS developments.

87852361   Research Methodology in Geoinformatics   3(3-0-6)

Principles and processes of geographic research methodology, research techniques in conducting qualitative research and quantitative research using geoinformatics, research design and planning, selection of research problems, principles of literature review, research methodology, principles of research writing, principles of writing research proposals, analysis of research results, spatial statistical analysis and other techniques, ethics researcher.

87852461   Seminar in Geoinformatics I   1(1-0-5)

Definition rationale, concepts and purpose of a seminar, components of a seminar, instructional management by seminar, planning the seminar, studying, researching, reviewing and analyzing research papers and geoInformatics-related articles, seminars on geoinformatics topics, preparation of the seminar report, academic reference, principles of speaking and presentation in research seminar, criticism and discussion of research, the study of innovation in geoinformatics.

Elective Courses   9   Credits

87852761   Resource and Environment Management Information System 3(2-2-5)

Principles of resource management, nature of resource management system, characteristics of geographic data, physical principle of remote sensing, geographic information systems resource, remote data applications and geographic information systems for resource management, creating information technology management systems for resource planning.

87852861   Database Management System   3(3-0-6)

       Data structure, database management, database management system components programs used for database administration and management, data file functiona, collection, classification, retrieval, database design synthesis, processing access control of various types of data, define data standards, data connections and applications to manage spatial databases.

87852961   Digital Image Analysis   3(2-2-5)

       Digital image data, Multispectral/Hyper Spectruml Image system, Radar System, advanced digital image processing techniques, improving image quality, principles of object-oriented image classification, vegetation index, multi-time data analysis, analysis and application of various types of remote sensing systems.

87853061   Geographic Information Standard   3(3-0-6)

       Background of geographic information standards, national, regional and international geographic information standard development, national and international standards organizations, problems in implementing and applying geographic information standards for practical work, example of geographic information standards from various standard organizations, comparison of geographic information standards in International Standards Organization (ISO) and Open Geospatial Consortium (OGC).

87853161   Land Use Management and Planning Techniques   3(2-2-5)

       Principles of land use planning, land use planning characteristics, land use planning framework, land use planning process and data system, socio-economic analysis of land use planning, land use planning for ASEAN Community

87853261   Management of Urban and Industrial Area   3(2-2-5)

       Theories, concepts and principals of urban planning, industrial zoning, laws of urban planning and industry, spatial data for urban planning, urban and industrial mapping

87853361   Advanced Physical Geography   3(3-0-6)

       Physical education, systematic analysis of natural phenomena, studies on climate, water, terrain, soil, rocks, minerals and organisms, analysis of global surface changes caused by various factors, study of the relationship between phenomena and human beings and their applications in various fields.

87853461   Management of Natural Disaster and Climate Change   3(2-2-5)

       Definitions of natural disasters and climate change, analysis and creation of natural disaster and climate change model, disaster management and climate change, modeling and future projection to address natural disasters and climate change with geoinformatics technology, application of geoinformatics, disaster analysis and climate change.

87853561   Environmental Impact Assessment   3(3-0-6)

       Principles and theories of environmental impact assessment (EIA), concepts, methods, issues and various forms and stages of EIA process, components of EIA report, regulations and laws of EIA, suitable methods and techniques for EIA, development of EIA topic, applications of geoinformation technology in EIA.

Required Courses of Wuhan University   4   Credits

87852561   Comprehensive Chinese in Daily life   2
The scheme of Chinese phonetic, alphabet, master all the sounds, rhymes and tones of Mandarin Chinese, study emphasis on 795 first class Chinese characters, 993 first class new words and 102 basic grammatical points, the writing rules, master common words in fundamental level.

87852661   Outline of China   2
System and comprehensive China with 14 key knowledge points about China, knowledge of Chinese territory, history, political, economy, society, culture, diplomacy, living, geography, law.

Elective Courses of Wuhan University   4   Credits

87853661   Seminar in Geoinfomatics II   1
Students develop critical thinking and academic writing competencies, formulate research questions, conduct literature review, write a proposal and engage in independent studies, research design skills, students to develop concrete quantitative and qualitative methods related to their own research topics.

87853761   Integrated Navigation   2
Introduces the inertial navigation system (INS), multi-sensor integrated navigation techniques, the mathematical principle, the design and implementation of integrated navigation algorithm using GNSS/INS, the basic algorithm and system designs of integrated navigation.

87853861   Generalized Adjustment   2
The basic and advanced knowledgement of observation adjustment, hypothesis testing, blunder detection, kinematic modeling, variance-covariance component estimation, and their implementation, the application of above knowledgement in your research projects.

87853961   Principles of Photogrammetry   2
Principles of processing aerial and satellite frame and push broom based digital images; object extraction provides accurate metric details, data entry, digital mapping and GIS database, the principles of acquisition and processing of lidar data in the determination of DEMs and information extraction.

87854061   Principles of Geodesy   2
Principles and foundation of geodesy, engineering and spatial geodesy, advanced physical geodesy, knowledge on geodesy theory and professional practical skills.

87854161   Advanced Topics on Remote Sensing   2
Examination and implementation of sophisticated approaches for processing satellite digital images with emphasis on environmental and urban applications.

87854261   Advanced Topics on GNSS   2
The scientific context of Global Navigation Satellite System (GNSS) technology, historical development, mathematical principles of GNSS, GNSS data processing, aspects of its applications in navigation, geosciences etc.

Thesis   **12   Credits**

87854361   Thesisproposal   4(0-0-36)

Research ethics, code of conduct of researcher, literature reviews, independent of research topics in geoinformatics, objective of study, methodologies, geostatistical analysis.

87869961   Thesis   8(0-0-36)

Research ethics, code of conduct of researcher, research topic evaluation, literature reviews, research objectives, research methodologies, research proposal presentation, research conduction, result analysis and synthesis, discussion, full research report compilation.