Faculty of Engineering and Sustainable Development
Akademin för teknik och miljö

EDUCATION PLAN

HÖGSKOLAN I GÄVLE

Master Programme in Geospatial Information Science 120 cr

Masterprogram i Geospatial informationsvetenskap 120 hp

Set by -

Version

Set at	**Valid from**
9/7/16	ST17
11/13/19	**HT20**

Education level	Second cycle
Programme code	TAGSM
Credits	120 cr
Diary number	HIG-UTB 2015/151

Target

A Degree of Master of Arts/Science (120 credits) is awarded after the student has completed the courses required to gain 120 credits with a defined specialisation determined by each higher education institution itself, of which at least 60 credits are for specialised study in the principal field (main field of study) of the study programme. In addition the prior award of a Degree of Bachelor's degree, Degree of Bachelor's degree in fine arts, professional or vocational qualification of at least 180 credits or a corresponding qualification from abroad is required.

The requirement of the prior award of a qualification may be waived for a student admitted to the programme without the basic entry requirement in the form of a qualification. This does not, however, apply if a waiver was granted during admission pursuant to the second paragraph of Section 28 of the Chapter 7 of the Higher Education Ordinance (1993:100) on the grounds that the qualification had not yet been issued.

Knowledge and understanding

For a Degree of Master of Arts/Science (120 credits) the student shall

demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
demonstrate specialised methodological knowledge in the main field of study.

Skills and abilities

For a Degree of Master of Arts/Science (120 credits) the student shall

demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information

demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work

demonstrate the ability in speech and writing both nationally and internationally to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and

demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and attitudes

For a Degree of Master of Arts/Science (120 credits) the student shall

demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work

demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and

demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Content and structure

The goal of the programme is for the student to obtain solid knowledge, understanding and problem solving skills which both broaden and deepen previous university studies. After graduation, the student should have knowledge and skills for professional activities that are largely self-directed and independent and required to gain employment as an expert in activities related to the geospatial information sector and / or for further studies leading to research degrees. The eduaction sould be delivered with high international standard and the obtained a degree should be internationally attractive.

Main Field of Study of Geospatial Information Science
Geospatial information science is a subject of interdisciplinary character which integrates ideas, theories and methods from geo sciences, in its brad interpretation, and from information technology or computer science. The core of the subject has a technical orientation with respect to collect, make searchable, model, calculate, visualize, and analyse all types of geo-referenced data and information. In its social orientation, it is studied how this type of information can be used to deal with concrete problems in spatial planning and decision making, and/or to simulate complex geographical phenomena and processes to illustrate the underlying mechanisms (scientifically oriented use).

Main structure of programme
The program is interdisciplinary run and is adapted to both market needs of special competence and post-graduate studies. The program is designed to relate to subject-related basic level education, e.g. studies in computer science and geographical information technology, land surveying or spatial planning. The programme may be totally or partially given in English.

The programme consists of courses at both basic and advanced levels. The courses given at basic level have two purposes. The first is to offer the opportunity for progression, that is, students with insufficient knowledge in the other sub-disciplines in Geospatial Information Science are given the possibility to continue at advanced level. The other purpose is to offer students the opportunity to broaden knowledge in the subject’s disciplines.

Other degree

Independent project (degree project)

A requirement for the award of a Degree of Master of Arts/Science (120 credits) is completion by the student of an independent project (degree project) for at least 30 credits in the main field of study. The degree project may comprise less than 30 credits, however no less than 15 credits, if the student has already completed an independent project in the second cycle for at least 15 credits in the main field of study or the equivalent from a programme of study outside Sweden.

Degree title

Master of Arts/Science (120 Credits)

Prerequisites

A completed Bachelor's degree, corresponding to a Swedish Bachelor's degree (180 ECTS),

or equivalent academic qualifications from an internationally recognised university.

Minimum 60 credits in a subject relevant for Geospatial Information Science (e.g. GIS, geodetic surveying, software engineering).

English language proficiency equivalent to (the Swedish upper secondary school) English course B/6.

Other

Normally, the acquired degree is Degree of Master of Science (filosofie masterexamen) 120 credits. If the student also has a minimum of 30 credits in mathematics/applied mathematics from previous studies, the student can opt for a Degree of Master of Science (teknologie masterexamen) 120 credits.

The degree requires 120 credits, whereof minimum 90 credits on advanced level, in the subject Geospatial information science. If the student wishes to use courses in other subjects for the degree, written approval must be sought from the programme director. Courses from other universities can be accounted after approval from the Head of subject.

Credit transfer of courses passed is done in consultation with the Programme Director and the Head of Subject.

A student that has studied the one-year Master Programme in Geomatics 60 cr at University of Gävle can continue to the second year in Master Programme in Geospatial Information Science 120 hp.

Transition stipulations
A student admitted to the programme in a previous year follows the curriculum that was in force at that time.

For a student admitted to a later part of the programme or a student having had an interruption of studies, a special curriculum is drawn up by the Programme Director in consultation with the student and, when need arises, with the Director of Studies.

Year 1

Period	Identifier	Title	Level	Credits	Field
1:1	SBG622	*Thematic and Web Cartography*	G2F	5 cr	Geospatial Information Science, Geomatics, Geography
1:1	SBG612	*Introduction to Studies on Advanced Level in Geospatial Information Science*	G2F	5 cr	Geospatial Information Science, Geomatics
1:1	SBG632	*GIS Data Structures and Algorithms*	G2F	5 cr	Geospatial Information Science, Geomatics, Geography, Surveying Technology
1:2	SBA064	*Spatial Analysis for Planning*	A1N	5 cr	Spatial Planning, Geospatial Information

					Science, Geomatics, Geography
1:2	SBA014	*Remote Sensing*	A1N	5 cr	Geospatial Information Science, Geomatics, Geography, Surveying Technology
1:2	DVG510	*Programming and Scripting for GIS*	G2F	5 cr	Geospatial Information Science, Geomatics, Computer Science
1:3	SBA305	*Spatial Multicriteria Decision Analysis*	A1F	5 cr	Geospatial Information Science, Geomatics, Geography, Surveying Technology
1:3	SBA024	*GIScience Seminar*	A1N	5 cr	Geospatial Information Science, Geomatics, Geography
1:3	SBA004	*Spatial Databases and SDI*	A1N	5 cr	Geospatial Information Science, Geomatics, Computer Science
1:4	SBG662	*Geodetic Surveying*	G2F	5 cr	Geospatial Information Science, Geomatics, Geography, Surveying Technology
1:4	SBA044	*Methods Tool Course for Geospatial Information Science*	A1N	5 cr	Geospatial Information Science, Geomatics, Geography, Surveying Technology
1:4	SBG652	*Theory and Practice of Urban Planning*	G2F	5 cr	Spatial Planning, Geospatial Information

					Science, Geography

Year 2

Period	Identifier	Title	Level	Credits	Field
2:1	SBA315	*GIS Organisation and Project Management*	A1F	5 cr	Geospatial Information Science, Geomatics, Geography
2:1	SBA054	*Geodesign and Scenario Planning*	A1N	5 cr	Spatial Planning, Geospatial Information Science, Geography
2:1	SBA325	*Risk Modelling, Mapping and Geovisualisation*	A1F	5 cr	Geospatial Information Science, Geomatics, Geography
2:2	DVA305	*Advanced Geospatial Data Visualization*	A1F	5 cr	Geospatial Information Science, Computer Science
2:2	SBA335	*Individual Project Course in Geospatial Information Science*	A1F	5 cr	Geospatial Information Science
2:2	SBA034	*Satellite Sensors and their Applications in Geospatial Information Science*	A1N	5 cr	Geospatial Information Science, Geomatics, Geography, Surveying Technology
2:3	SBA805	*Degree Project for a Masters in Geospatial Information Science*	A2E	30 cr	Geospatial Information Science