Faculty of Science

NGEN26, Geomatics: Web GIS, 7.5 credits

Geomatik: Webb GIS, 7,5 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2021-05-24 to be valid from 2021-05-24, autumn semester 2023.

General Information

The course is an elective course for a Degree of Master of Science (120 credits) in GIS and remote sensing in the main field of study geomatik and an elective course for a Degree of Master (120 credits) in Physical geography and ecosystem sciences.

Language of instruction: English

Main field of studies	*Depth of study relative to the degree requirements*
Physical Geography	A1N, Second cycle, has only first-cycle course/s as entry requirements
Geomatics	A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

The general aim of the course that the student should acquire advanced practical and theoretical knowledge in web GIS. The student learns to handle necessary tools to publish advanced databases with geographic data for a broader audience via internet and to put up map services for distribution of geographic data.

Knowledge and understanding

On completion of the course, the students shall be able to:

- explain architecture and technologies in web GIS used to publish map data on the Internet
- explain how web applications for distributed geographic information function
- describe the concept interoperability and what international standards that are available

- from a technical perspective give an account of and explain how infrastructures for geographic information and geoportals are functioning
- describe legal and ethical aspects of publication of geographic information including maps, via the Internet.

Competence and skills

On completion of the course, the students shall be able to:

- create a web client service for a map distribution server by using HTML code and a script based programming language
- use OGC standards and specifications to retrieve geographic information from standard map services
- develop a web-based GIS solution using software based on open source code, program language libraries and and implementation of existing scripts.

Judgement and approach

On completion of the course, the students shall be able to:

- evaluate different methods for map services and weigh their advantages and disadvantages against one another
- demonstrate a critical and initiated approach to web-based map services and applications
- evaluate ethical aspects of publication of maps on internet.

Course content

The theoretical parts of the course describe and analyse different technologies for publication, visualisation and distribution of maps on internet. This includes the architecture for web GIS and web-based map handling systems, marker languages such as HTML, XML and GML, script based programming languages, web cartography, sharing of data and geoportals, web services for geographic information and OGC-standards. In the theoretical parts of the course, a seminar that treats the legal and ethical aspects of publication of maps on internet is also included . Technologies for development of web GIS are included in the practical modules and applications. The development of both static and dynamic interactive systems are treated in the form of exercises. The student also works with different softwares based on open source and existing software library for development of web services for distribution of geographic information.

Course design

The teaching consists of theoretical lectures that link to practical exercises. The exercises are based on the lectures, reinforcing and developing on the theoretical concepts that are treated during these by practicing implemention individually or in groups . The course ends with a larger project work that is carried out individually or in groups synthesising and including all course components to permit the student to acquire an overall picture in web GIS. Participation in project work and exercises is compulsory.

Assessment

Examination takes place written in the form of an written exam at the end of the

course, assessment of exercises and written assignments during the course and of a final project at the end of the course.

Students who do not pass an assessment will be offered another opportunity for assessment soon thereafter.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.
To pass the course, passed result for the exam and passed on all compulsory components including participation in seminars.

Grades in examination and project are Failed, Passed, Passed with distinction and grades on submissions and exercises are Failed, Passed.

The final grade is decided through a joint assessment of the results of the examinating components and the project report in proportion to their extent (see appendix).

Entry requirements

Entry to the course requires English 6/B and at least 90 credits in natural sciences or technology of which at least 15 credits should be in geographic information science equivalent NGEA11 Geographical Information Systems - Basic Course, 15 credits or the equivalent knowledge.

Further information

The course cannot be included in qualification together with NGEN06 Web GIS, 7.5 credits or GISN09 Internet GIS, 7.5 credits.

Subcourses in NGEN26, Geomatics: Web GIS

Applies from H23

2301 Exam, 6,0 hp
Grading scale: Fail, Pass, Pass with distinction
2302 Project work, 1,5 hp
Grading scale: Fail, Pass
2303 Exercises and hand-ins, 0,0 hp
Grading scale: Fail, Pass