

# Geographical Information Systems for Transportation

Programme course

6 credits

Geografiska informationssystem för trafik och  
transporter

TNK055

Valid from: 2017 Spring semester

**Determined by**  
Board of Studies for Industrial  
Engineering and Logistics

**Date determined**  
2017-01-25

**Offered for the last time**  
Autumn semester 2022

**Replaced by**  
TNK128

## Main field of study

Computer Science and Engineering, Transportation Systems Engineering

## Course level

First cycle

## Advancement level

G1X

## Course offered for

- Intelligent Transport Systems and Logistics, Master's Programme

## Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites

Admission requirements for master level studies

## Intended learning outcomes

The aim is to give an introduction to geographic information technology and a deeper knowledge about geographical information systems as a tool for engineers. The course also provides an introduction to programming in Matlab.

After the course the students should

- be familiar with basic geographic information technology
- be able to work independently with GIS-software, perform analysis and to present the result in clear and well structured reports
- be able to independently implement GIS-relevant algorithms in Matlab
- have understanding for database systems and be able to search and select information using SQL-queries

## Course content

Data capture, Data structures, Geographic databases, Cartographic presentation, Geographical analysis. Practical exercises with GIS-softwares. Applications for transportation. Programming in Matlab.

## Teaching and working methods

The course contains lectures and laboratory work.

## Examination

UPG1	Individual assignments	3 credits	U, 3, 4, 5
LAB1	Laboratory work	3 credits	U, G

## Grades

Four-grade scale, LiU, U, 3, 4, 5

## Other information

Supplementary courses:  
Positioning Systems

## Department

Institutionen för teknik och naturvetenskap

## Director of Studies or equivalent

Erik Bergfeldt

## Examiner

Carl Henrik Häll

## Course website and other links

<http://www.itn.liu.se/~carha/tnk055>

## Education components

Preliminary scheduled hours: 38 h

Recommended self-study hours: 122 h

## Course literature

### Additional literature

#### Books

Fazal, Shahab, (2008) *GIS basics. [Elektronisk resurs]*

ISBN: 9788122423761, 9788122426397

New Delhi : New Age International (P) Ltd., Publishers, c2008.

Nasser, Hussein, Mohanta, Pratyush, (2014) *Learning ArcGIS geodatabases : an all-in-one start up kit to author, manage, and administer ArcGIS geodatabases.*

*[Elektronisk resurs]*

ISBN: 9781783988655, 9781783988648

Birmingham, [England] : Packt Publishing, 2014.; Community Experience

Distilled  
<br />Community experience distilled

## Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at [http://stydokument.liu.se/Regelsamling/Innehall/Utbildning\\_pa\\_grund-\\_och\\_avancerad\\_niva](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).