“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change.”

Not Charles Darwin!
Education becomes a life long endeavor
PART TIME, BLENDED, AND DISTANCE OPTIONS

GIMA
Geographical Information Management and Applications

Wageningen University & Research
ITC University of Twente
Universiteit Utrecht
TU Delft

You will get the best from geo-information experts from four universities in the Netherlands: University of Twente/ITC Enschede, TU Delft, Utrecht University and Wageningen University. These universities have joined forces to offer GIMA, each with their own specializations related to geo-information technology, management and applications. The GIMA programme offers more than advanced use of GIS (Geographic Information Systems) for a variety of applications: it also covers the management of geo-information and spatial data infrastructures in organizations and management styles. Since the start of the programme in 2003, GIMA has become one of the most popular and well evaluated master programs on geo-information applications and management in the Netherlands and our community keeps growing.

GIMA is a blended learning Master programme (see Programme Structure): most of the time you are studying from the place where you think you can study best (e.g. at home). For the first part of the programme (one or two years depending on whether you are a full-time or part-time student) there are only four short contact periods per year, one at each partner university. During those contact periods (with a duration of one or two weeks only) you are supposed to be present in person but for the rest of the year you can study through our electronic learning environment from wherever you are. Obviously, the same holds for the individual thesis research project of 6 (full-time) or 12 (part-time) months duration in the last part of the programme. When doing the program's internship with the same duration, of course you will have to be present at the geo-information company or institute you have selected for your internship.
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High-Level Capacity Building:
1-day awareness events followed by Q&A sessions, short recorded videos, integration in existing learning environments

Hands-on Capacity Building:
Local workshops in two steps, self study follow up materials, project based learning, E-learning packages, MOOCs

 MDBs & Government Officials/ Decision Makers

Task Team Leaders

Local Implementation Teams

General Awareness: News, Brochures, Knowledge portals, Webinars
Need for higher capacity
Throw a mapping party!

Missing Maps
Putting the World’s Vulnerable People on the Map
THE 4 Cs OF EDUCATION
IN THE 21ST CENTURY

C Communication
C Collaboration
C Critical Thinking
C Creativity
STUDENT CENTRED LEARNING

- Flipped classroom
- New exercise designs
- Increased engagement
- Project based learning
- Peer reviews
STUDENT STUDY APTITUDES
DIFFERENT LEARNING STYLES

Visual or Verbal
Sequential or Global
Active or Reflective
Sensing or Intuitive
**Georeferencing**

In the early days of geoinformation science, spatially referenced data usually originated within national boundaries, i.e. these data were derived from printed maps published by national mapping organizations. Nowadays, users of geoinformation are combining spatial data from a given country with global spatial data sets, reconciling spatial data from published maps with coordinates established by satellite positioning techniques, and integrating their spatial data with that from neighbouring countries. To perform these kinds of tasks successfully, we need to understand basic spatial referencing concepts.

**Prior knowledge**
- Coordinate system

**Learning outcomes**
- 8 - Spatial referencing
  Apply coordinate transformations and spatially reference an image in a GIS (level 3).

**Explanation**

The simplest way to link image coordinates to map coordinates is to use a transformation formula. A geometric transformation is a function that relates the coordinates of two systems. A transformation relating \((x, y)\) to \((i, j)\) is commonly defined by linear equations, such as: \(x = 3 + 5i,\) and \(y = -2 + 2.5j.\)

Using the above transformation, for example, the image position \((i = 3, j = 4)\) corresponds to map coordinates \((x = 18, y = 8).\) Once the transformation parameters have been determined, the map coordinates for each pixel can be calculated. This implies that we can superimpose data that are

https://ltb.itc.utwente.nl/
Coordinate system

Different kinds of coordinates are used to position objects in a two- or three-dimensional space.

Spatial coordinates (also known as global coordinates) are used to locate objects either on the earth's surface in a 3D space, or on the earth's reference surface (ellipsoid or sphere) in a 2D space. Specific examples are the geographic coordinates in a 2D or 3D space and the geocentric coordinates, also known as 3D Cartesian coordinates.

The latitude and longitude angles represent the 2D geographic coordinate system.

Planar coordinates on the other hand are used to locate objects on the flat surface of the map in a 2D space. Examples are the 2D Cartesian coordinates and the 2D polar coordinates.

An illustration of the 2D Cartesian coordinate system

Learning outcomes

- 7 - Coordinate systems and map projections
  Explain the relevance of reference surfaces, coordinate systems, and coordinate transformations in mapping (level 1 and 2).

Outgoing relations

- Coordinate system is processed by Coordinate transformation

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TEACH CODING WITHOUT FOCUS ON SYNTAX
Kahoot!

codegrade

FeedbackFruits

BigBlueButton

URKUND

mentimeter

Slack

shakespeak
THE 4 C’S OF EDUCATION
IN THE 21ST CENTURY

Cultural Sensitivity
Ethics
Empathy

Communication
Collaboration
Critical Thinking
Creativity
Parya Pasha
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