

Map projections 1

Purpose of education

a, knowledge

- He/she has a complex knowledge of the general cartographic, geographic, mathematical and informatics principles, rules and interrelationships necessary for the practice of cartography and geoinformatics, in particular in the following subjects: surveying, map projections
- Knowledge of the specific tools of the field of cartography and geoinformatics, the mathematical and cartographic principles of editing maps for different purposes.
- Ability to evaluate, use as source material and process as a database national and foreign, old and new maps and other cartographic publications (globes, sky globes, relief maps, etc.).

b, abilities

- Ability to interpret and formalise complex professional problems in the field of cartography and geoinformatics, to identify the necessary theoretical and practical background and to solve the problem.
- Ability to apply what has been learned in a diverse, multidisciplinary professional environment.
- Ability to communicate, debate and report in written and oral form in the mother tongue and in at least one world language, using a high level of professional vocabulary in the field of competence.

c, attitude

- Open and committed to critical feedback and evaluation based on self-reflection.
- It is committed to meeting and enforcing quality standards (accuracy, commitment).

d, autonomy and responsibility

- Responsible for meeting and enforcing deadlines.
- Assumes responsibility for his/her own work and that of his/her colleagues working under his/her direction and with him/her (in a project).
- In the case of mission-critical mapping and geoinformatics systems, may be given development and operational responsibility appropriate with his/her professional competences.

Content of education:

- General properties, attributes, and classification of map projections
- The theory of map distortions, Tissot's theorem
- Relationship between formulae of projections and distortions
- Distorted maps: cartograms, focussed projections
- Perspective azimuthal projections: vertical, gnomonic, orthographic, stereographic
- Non-persp. azimuthal projections: equidistant, Lambert, Ginzburg, UPS, Amersfoort, Roussilhe
- Perspective cylindrical projections: central, Gall, Braun, Lambert
- Non-perspective cylindrical projections: Plate Carrée, Cassini, Mercator, Miller, Gall–Peters
- Ellipsoidal cylindrical projections: Cassini–Soldner, Gauss–Krüger, Hotine, EOVI, Web Mercator
- Aphylactic conic projections: perspective, De L'Isle, Mendeleyev, Ptolemy I.
- Equal-area & conformal conic projections: Lambert, Albers, Křovák
- Insight to non-conical projections

Evaluation system: oral and/or written exam

Literature:

Obligatory:

- Györffy, J.: Térképészet és geoinformatika II. Térképvetületek. ELTE, Budapest, 318 p., 2012 ISBN: 9789633121382
- Timár G., Molnár G.: Térképi vetületek és alapfelületek. ELTE, Budapest, 87 p., 2013, ISBN: 9789632843872

Recommended:

- Hazay I.: Vetülettan. Tankönyvkiadó. Budapest. 360 p., 1964. ISBN: 0159000354641
- Snyder, J. P.: Map projections: A working manual U. S. Government Printing Office. Washington D.C. 397 p., 1987 ISBN: 9781782662228