

SYSTEM OF CARTOGRAPHIC AND GIS STUDY SUBJECTS AT THE DEPARTMENT OF GEOMATICS, RIGA TECHNICAL UNIVERSITY

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We want to point that since 1951 geodesy speciality in Latvian higher education system was closed. In 1989 this speciality was renewed and at present time it is study programm "Geodesy and cartography" at the Department of Geomatics Riga Technical university.

In 1995 Government of Latvia has accepted the Cartography Development Concept for state. The main objective of this strategy plan was the re-creation of national cartography on a internationally accepted level, including the training of specialists needed. To help surveying authorities and enterprises in accordance with the needs of society to create new GEOMATICS education on the basis of Surveying Engineering curricula.

The study programme of Geomatics at the Riga Technical University was discussed and professional level of teaching staff was increased during the PHARE project named GEMLA – Geomatics education in Latvia. In this project Karlsruhe University of Applied Sciences (Germany), Mikkeli Polytechnic (Finland), Nottingham Trent University (Great Britain) and Riga Technical University were taking part actively.

Currently we are taking part at the EEGECS (European Education in Geodetic Engineering, Cartography and Surveying) international project which is devoted to the harmonization of the study programmes of Geomatics throughout the Europe.

System of cartographic and GIS study subjects we realize at the two levels:

academic level and professional level. At the academic level are such study subjects:

A – bachelor programm: cartography, photogrammetry, GIS, Land information system, computer sciences (basic and special courses), computergraphics and Bachelor work.

B –master programm: thematic cartography, theoretic cartography, digital mapping, digital terrain models, GIS, computergraphics and Master thesis.

At the professional level are such study subjects: cartography, photogrammetry, architectural photogrammetry, GIS, GPS, computer sciences (basic and special courses), computergraphics and project.

At present time we prepare new study programm for professional bachelors and professional masters. This programm include new subjects, e.g. topographic cartography, marketing and management in cartography.

New Bachelors program

A. MANDATORY SUBJECTS

80 CP

1. Mathematics	9 CP
2. Mathematics (special course)	3 CP
3. Physics	6 CP
4. Remote Sensing	2 CP
5. Computer sciences (basic course)	3 CP
6. Descriptive geometry and engineering graphics	2 CP
7. Economics	2 CP
8. Fundamental rights	2 CP
9. Environmental engineering	2 CP
10. Geodesy	3 CP
11. Application of Geodetic measurements	6 CP
12. Practical geodesy	2 CP
13. Engineering Geodesy	2 CP
14. High geodesy	6 CP
15. Fundamentals of Geoinformation systems	4 CP
16. Fundamentals of geomatics	2 CP
17. Cartography	4 CP
18. Photogrammetry	6 CP
19. Real estate cadastre	3 CP
20. Property valuation	3 CP
21. Civil engineering (basic course)	2 CP

22. Building mechanic (basic course)	2 CP
23. Roads (basic course)	2 CP
24. Civil defense	1 CP
25. Labour defense	1 CP
26. Sport	0 CP

B. SUBJECTS OF LIMITED CHOISE 40 CP

1. Subjects from Program

1.1. Geodetic network	4 CP
1.2. Global positioning systems	3 CP
1.3. Geographical information systems	3 CP
1.4. Geodetic gravimetry	2 CP
1.5. Digital terrain models	2 CP
1.6. Cadastral surveying	2 CP
1.7. Hidrographic surveying	2 CP
1.10. Application programs in Geomatics	3 CP
1.11. Geomatic data processing	4 CP
1.12. Legislation in geomatics	2 CP
1.13. Land law	3 CP
1.14. Land registration systems	3 CP
1.15. Land management	3 CP
1.16. Territorial planning	2 CP
1.17. Astronomy	2 CP

2. Languages

4 CP

2.1. English	4 CP
2.2. German	4 CP

3. Humanitarian / social subjects

4 CP

3.1. Common sociology	2 CP
3.2. Managerial sociology	2 CP
3.3. Applied etiquette	2 CP
3.4. Politology	2 CP
3.5. Social development models	2 CP

C. SUBJECTS OF FREE CHOOSE

4 CP

D. PRACTIC

30 CP

1. Practic	30 CP
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E. FINISH TRYOUT

18 CP

1. Bachelor thesis (engineer project)	18 CP
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New Master programme:

A. MANDATORY SUBJECTS	35 CP
1. Height fixation with GPS	3 CP
2. Computergraphic in geomatics	6 CP
3. Theoretical geodesy	6 CP
4. Digital mapping	3 CP
5. Thematical cartography	4 CP
6. Property valuation	6 CP
7. Registration systems of land management	2 CP
8. Organisation of research work	3 CP
9. Marketing and management in cartography	1 CP
10. Labour protection	1 CP
B. SUBJECTS OF LIMITED CHOISE	15 CP
1. Special subjects	9 CP
1.1. High geodesy	6 CP
1.2. Geodetic data processing	6 CP
1.3. Local geodetical network	3 CP
1.4. Economic and organization of geodetical employment	3 CP
1.5. Theoretical cartography	3 CP
1.6. Topographical cartography	3 CP
2. Humanitarian / social subjects	4 CP
2.1. Ethics	2 CP
2.2. Business sociology	2 CP
2.3. Social psihology	2 CP
2.4. Presentation	2 CP
Pedagogic subjects	2 CP
2.5. Pedagogy (for masters)	2 CP
2.6. Psihology (for masters)	2 CP
Economical / management subjects	2 CP
2.7. Business planning	2 CP
2.8. Management of geodetic employment	2 CP
2.9. Building management	2 CP
C. SUBJECTS OF FREE CHOOSE	6 CP
D. PRACTICE	24 CP
E. FINISH TROUT	20 CP
Masters thesis	20 CP

In study programm like "Digital mapping" is possible to learn more about different programs, which are used for digital cartography, for example for topographical plans, cadastral mapping, underground utility plans and other kind of maps. Those programms, such as MicroStation Bentley software, or AutoCAD program, currently are widely used in different privat companies, which produce geodetical and cartographical production.

At present time we prepare new study programm for professional bachelors and professional masters. This programm include new subjects, e.g. topographic cartography, marketing and management in cartography.

Our students use the benefits of the Socrates Erasmus exchange programme.

We have cooperation agreement with Karlsruhe University of Technology (Germany) and Mikkeli Polytechnic (Finland). At present time we prepare cooperation agreement with National University "Lviv Politechnic" (Ukraine).

Department of Geomatics has a close ties of cooperation research and development with the Institut of Geodesy and Geoinformation of the University of Latvia and with "Riga GeoMetr's Ltd". At the Institute of Geodesy and Geoinformation is Department of Geomatics. The main topics of the activities of this Department are:

- development of country-wide 2D and 3D geographical databases,
- development of highly detailed urban 2D and 3D geographical databases,
- development of the complete geographical information systems.

"Riga Geometrs Ltd" is advanced Riga municipality surveying company with a following main tasks :

- to manage the Adress Register,
- is responsible for the geodetic infrastructure to perform topographical surveying and mapping in Riga city,
- participation in the project *EUPOS*
- the Riga multifunctional GNSS positioning system is under development.

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