



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus universiteto
**STUDIJŲ PROGRAMOS *KARTOGRAFIJA* (valstybinis kodas -
6211CX013, 621F87001)
VERTINIMO IŠVADOS**

**EVALUATION REPORT
OF *CARTOGRAPHY* (state code - 6211CX013, 621F87001)
STUDY PROGRAMME
at Vilnius University**

Experts' team:

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3. **Prof. Dr. Adam Weintrit,** *academic,*
4. **Dr. Christiane Weber,** *academic,*
5. **Mr. Sakalas Gorodeckis,** *social partner,*
6. **Mr. Dionyzas Šlimas,** *students' representative.*

Evaluation coordinator -

Miss Lina Malaiškaitė

Išvados parengtos anglų kalba
Report language – English

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

| | |
|--|--------------------------|
| Studijų programos pavadinimas | <i>Kartografija</i> |
| Valstybinis kodas | 6211CX013, 621F87001 |
| Studijų sritis | Fiziniai mokslai |
| Studijų kryptis | Gamtinė geografija |
| Studijų programos rūšis | Universitetinės studijos |
| Studijų pakopa | Antroji |
| Studijų forma (trukmė metais) | Nuolatinė (2) |
| Studijų programos apimtis kreditais | 120 |
| Suteikiamas laipsnis ir (ar) profesinė kvalifikacija | Fizinių mokslų magistras |
| Studijų programos įregistravimo data | 2001-05-24 No. 877 |

INFORMATION ON EVALUATED STUDY PROGRAMME

| | |
|---|-----------------------------|
| Title of the study programme | <i>Cartography</i> |
| State code | 6211CX013, 621F87001 |
| Study area | Physical sciences |
| Study field | Physical Geography |
| Type of the study programme | University Studies |
| Study cycle | Second |
| Study mode (length in years) | Full-time (2) |
| Volume of the study programme in credits | 120 |
| Degree and (or) professional qualifications awarded | Master in Physical sciences |
| Date of registration of the study programme | 2001-05-24 No. 877 |

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The Centre for Quality Assessment in Higher Education

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I. INTRODUCTION

1.1. Background of the evaluation process

The evaluation of on-going study programmes is based on the **Methodology for evaluation of Higher Education study programmes**, approved by Order No 1-01-162 of 20 December 2010 of the Director of the Centre for Quality Assessment in Higher Education (hereafter – SKVC).

The evaluation is intended to help higher education institutions to constantly improve their study programmes and to inform the public about the quality of studies.

The evaluation process consists of the main following stages: 1) *self-evaluation and self-evaluation report prepared by Higher Education Institution (hereafter – HEI)*; 2) *visit of the review team at the higher education institution*; 3) *production of the evaluation report by the review team and its publication*; 4) *follow-up activities*.

On the basis of external evaluation report of the study programme SKVC takes a decision to accredit study programme either for 6 years or for 3 years. If the programme evaluation is negative such a programme is not accredited.

The programme is **accredited for 6 years** if all evaluation areas are evaluated as “very good” (4 points) or “good” (3 points).

The programme is **accredited for 3 years** if none of the areas was evaluated as “unsatisfactory” (1 point) and at least one evaluation area was evaluated as “satisfactory” (2 points).

The programme **is not accredited** if at least one of evaluation areas was evaluated as "unsatisfactory" (1 point).

1.2. General

The Application documentation submitted by the HEI follows the outline recommended by the SKVC. Along with the self-evaluation report and annexes, the following additional documents have been provided by the HEI before, during and/or after the site-visit:

| No. | Name of the document |
|-----|--|
| 1 | Organisational structure of the Vilnius University |
| 2 | Performance indicators of the program staff (<i>h-index</i>) |

1.3. Background of the HEI/Faculty/Study field/ Additional information

1.4. The Review Team

The review team was completed according *Description of experts' recruitment*, approved by order No. V-41 of Acting Director of the Centre for Quality Assessment in Higher Education. The Review Visit to HEI was conducted by the team on *26 October, 2017*.

- 1. Prof. Maris Klavins (team leader)**, *Professor of Department of Environmental Science, University of Latvia, Latvia;*
- 2. Prof. Andrew Cooper**, *Professor of Coastal studies, School of Environmental Sciences, University of Ulster, Ireland;*
- 3. Prof. Dr. Adam Weintrit**, *Professor of the Faculty of Navigation, Gdynia Maritime University, Poland;*
- 4. Dr. Christiane Weber**, *Senior researcher at CNRS DRCE, France;*
- 5. Mr. Sakalas Gorodeckis**, *board member of Geography and the Geographical Society, Lithuania.*
- 6. Mr. Dionyzas Šlimas**, *student of Kaunas University of Technology of Chemical engineering study programme.*

Evaluation coordinator – Miss Lina Malaiškaitė

II. PROGRAMME ANALYSIS

2.1. Programme aims and learning outcomes

The proposed learning outcomes of program titled „Cartography” as stated in the SAR is: “to prepare a broad profile geographic information professional with specific skills of cartographic visualisation and capacity to independently analyse a chosen field of geographic information application, identify problems and systematically advance the knowledge and (or) technology of the field by application of cartographic methods”. The intended learning outcomes comply with requirements of labour market in Lithuania research institutions, agencies and projects, where spatial data are concerned, state institutions and enterprises, municipality administrations, municipal institutions and enterprises and publishing houses.

To achieve the major aim of the programme, tasks have been formulated to cover all activity areas of contemporary cartographers that are integrally associated with each other and ensure the systemic integrity of the programme. Information on the purpose, learning outcomes, content of the SP is freely accessible at Website of Vilnius University and faculty, Open System of Providing Information. Further activities to inform about the study program are organised, as

was stated during meeting with stakeholders. Social partners are actively involved in the revision of the learning outcomes and study program implementation. It seems the cartographer community is well communicating and thus the stakeholders significantly contribute towards the program content updating. The program aim and learning outcomes of the programme are justified by national legislation and international professional requirements. The study program in general might be considered as unique in Lithuania as „Cartography” programme is the only one that prepares broad profile analysts also capable for all kinds of cartographic communication.

From discussions with students and social partners, the reported learning outcomes were well supported. The overall generic outcomes were certainly consistent with generally expected outcomes of a graduate MSc program. Furthermore, the educational outcomes and research infrastructure/experience in the cartography was viewed as unique and certainly worthy of continued program support, despite the identified problems.

2.2. Curriculum design

Generally the programme structure is in line with the Lithuanian legislative requirements and in the direction of meeting EU standards. Subjects of study (modules) are taught in a consistent manner, subjects and topics are not repeated, however as some problem might be considering the delivery of the program content for students which do not have studied geography: It could be suggested to include in the curricula study courses specifically designed for students with a differing background. The content of subjects (modules) corresponds to the type and cycle of studies. Expected learning outcomes are transparent and clearly reflect the programme content and ensure the distinctiveness of the Bachelor and Master programmes in Physical Sciences. With regard to both aims and outcomes and the curriculum, the programme covers the practical classes, which are associated with introducing qualitative research methodologies and strengthens the group of optional subjects. However the placements (study practice) is not included in the study program. The expert team suggest to consider possibilities to include in the study program topics on 3D modelling and simulation, programming language basics, widening knowledge in IT sciences. The scope of the programme is sufficient to achieve the learning outcomes in respect to skills needed in labour market, but not much in respect to research skills in the field. Development of research skills and development of motivation for students to continue their education (lifelong as well as at PhD study level) is an essential element of good quality MSc program and the curricula should be rearranged to support student involvement in research activities. Regarding actual issue about intellectual properties: it is recommended to be

sure that intellectual properties over students realizations (data, computing program or/and map) are clearly presented to the student at the beginning of the study program.

The content of the programme only partly corresponds to the latest academic and technological achievements: it is recommended to review the curriculum taking into account the latest achievements in the field of Earth Observation, information and communication technologies etc.

Expert team got the HEI opinion, however we are really glad that our thinking is on the same direction as of program management group and after 1 year from the evaluation new study course will be included into the content of the program delivered by the expert in the field.

The expert team stress the significance of the regular updating of the study program content to follow recent trends of the development in the field. The suggested topics belong to issues actively discussed and developing in the field related to cartography and thus reflect the directions of similar study program development worldwide. Yes indeed, some elements of the suggested topics are already present in the study program, however they are disseminated between different study courses. So the concepts of recently rapidly developing approaches is dispersed, thus their content can disappear amongst other study topics, methodologies etc. Expert team thus suggest concentrating the suggested topics and expanding their delivery as well as attract staff specialised on the mentioned topics.

2.3. Teaching staff

This course is taught by small number of staff who are suitably qualified and meet the legal requirements. There is a good mix of experience among staff with relatively fewer older staff members than younger. Staff meet legal requirements and is suitably qualified to deliver the varied learning outcomes. Several of the teaching staff are employed on a part-time basis (0.25). They have primary employment in the GIS business. This brings direct practical experience to their teaching but also has implications for research activity as it have a secondary role. As a positive development can be considered involvement of international lecturers (average 3 per year) in the study programme.

There is only limited research activity among the teaching staff and much of the published work is in Lithuanian journals. The same message was contained in the previous report but seems not to have been accepted or acted upon. The research output is quite unevenly spread among the

staff but overall the level of research output is very low (staff H-indices range from 0 to 4). There is some Involvement in research projects, particularly national Lithuanian projects, however much more attention should be paid to participation in international projects. Especially noteworthy is the national atlas of Lithuania. Several staff attend conferences and those related to the Inspire Directive have proved very useful. Some have undertaken study visits abroad, while others have undertaken training in didactic methods offered by Vilnius University.

There are good staff-student relations. Both students and staff commented on the ability to communicate regarding the course and students believe the teaching team responded rapidly to student comments or criticism. Students value the care that lecturers show for their well being.

The lack of research involvement is a key shortcoming that could easily be addressed through collaboration with staff in other study programmes. Developing collaborative work in medical Geography and geomorphology were two areas that could be pursued immediately.

The expert team agrees that the situation has improved since 2012, however the given statement is valid also in 2017! Still the basic conclusion are the same: 1) majority of the research production is in Lithuanian journals; 2) the publication output is low (5 papers for a study program is a low figure). So efforts should be continued to improve research performance. The expert team remains at the given statement as: 1) not all MSc study program members are participating in research projects; 2) major activities are related to national projects. We do not have doubts on their significance, however it is important to understand the significance of participation in international projects; 3) The information given in the SER indicates that majority of the so called “international projects” are networking activities, for example. For the program management it is very important to understand the huge differences between networking activities and, for example, Horizon2020 projects. Expert team strongly suggest need to work in international teams in joint projects.

2.4. Facilities and learning resources

The MSc program is managed by a year ago reorganised the Faculty of Chemistry and Geosciences, which consists from two Institutes. One of them the Institute of Geosciences occupies a part of one 3 story historic building in the Vilnius University camp at the Čiurlionio street area. This Institute located at this building has five departments. The owner of MSc programme is the Department for Cartography and Geoinformatic. Most lectures and practical classes are held in the Faculty building, which recently has physical resources for the studies.

The auditoriums and classes used for this programme are renovated and equipped by modern multimedia.

At the faculty are few computer classes available for students, whose could use own laptops as well. The up-to-date licensing of computer software including different vendors GIS is maintained even for installation at students' laptops. In general, the premises for studies are adequate in both size and quality.

For studies programme there is Remote Sensing laboratory equipped by modern drones and aerospatial observing tools. The field works combine the use of the methods of aerospatial monitoring, data processing by GIS software and etc. The arrangements for students' practice are good.

The literature for the courses is mainly in the Lithuanian language, the programme's principal language. Due to the reorganisation the faculty library located in the same building is splitted, focusing recently for the Institute of Geosciences purpose only. So the Institute library renovation and modernization is planned for the end of 2017. The University library subscribes wide range of full-text databases, where students can really find the information needed for their studies and research. But there is shortage of learning resources, which is partially compensated by bought publications in other languages. Part of specific literature available for students is provided by lecturers from rich Department collections, especially atlases and maps. The students have possibility to use other modern organised university libraries as well. In general, the having teaching materials are adequate and covering programme needs.

2.5. Study process and students' performance assessment

Admission requirements are well founded and centrally administered by the University. The requirements are unified, expressed in a specific formula, independent of the university and programme from where the applicants received their bachelor degree. They enable selection of well-qualified and motivated students from a diversity of bachelor level programmes. The students who met with the expert group appeared to be highly motivated and fully engaged with the programme.

The organisation of the study process ensures an adequate provision of the programme and the achievement of the intended learning outcomes. Classes, all compulsory, are evenly distributed during a week and over a semester, in a schedule that is designed to accommodate the time

constraints of students who are also in employment. Studies are evenly balanced between taught classes and self-study times. The workload for students is quite high but they offered no adverse comments about these arrangements. Students during the meeting expressed a wish, that part of studies could be presented in English.

Students receive all necessary information at the beginning of each study course, regarding the aims and outcomes, the modes and timing of assessments and the performance requirements for particular grades. From the start of the programme, students are expected to begin preparatory work on a research project, either in a theme proposed by themselves or chosen from a list offered by the staff. Too early selection of the research topics could pose a problems for development of mature thesis works. Each project has a scientific advisor and adequate supervision is provided right through to the final preparation and submission of the thesis. This concludes the programme and is one of the most important components, demonstrating the acquisition of knowledge and practical skills.

The assessment system of students' performance is clear, adequate and publicly available. The timetable of assessments as far as possible accords with student preferences for times and dates, subject to approval by the staff and the Faculty. This is normally given, provided that formal requirements are satisfied and suitable accommodation is available. Procedures for submitting and defending the final thesis are clear and rigorous and the presented thesis works are of good quality. Thesis evaluation requirements and procedures are well understood by students and by all involved in evaluating the thesis. There are well-regulated opportunities to repeat an academic subject. The system of resolving areas of dispute by students appears to be well understood. Students voiced no complaints at all about the assessment procedures. The assessment criteria are well matched to the programme's intended learning outcomes and students' academic performance is good.

With regard to student mobility, students receive information about international exchange possibilities. There are opportunities to attend foreign universities for one term, where a similar programme runs, using the ERASMUS student exchange scheme.

Students receive adequate academic support. Information about the programme is consistent and provided at appropriate times. The small number of students and the good staff-student relations that prevail mean that teachers are readily available to students and communicate freely with them. One-to-one consultations about study progress and careers advice are normal features of

student support. Also other options of career consultation is provided, considering close cooperation with social partners. University provides additional financial support in a number of ways. Scholarships reward certain academic successes or are directed to the social support of students with disabilities or other handicaps to study, such as serious illness or bereavement. Counselling and advisory services are available to help and guide students experiencing study difficulties. The University provides many opportunities for scientific, cultural and sports activities.

The expert team observed that, in a sense the relationship between the programme and employers is almost familiar. This can be both a strength, in terms of securing employment, but also a weakness, in that programme management can be somewhat insulated against external influences. The programme is tailored to cohere with employers' requirements, in which scientific research features little. The commercial or social partners employ graduates who have been trained and acquired the knowledge and skills to equip them for employment in those enterprises. It is therefore inevitable that the professional activities of the majority of graduates meet the programme provider's expectations and are in line with needs in country in specialists trained in cartography.

2.6. Programme management

The good relationships with stakeholders and partners allow setting up every semester in study committee meetings some proposals for program improvement. The social partners (GIS-centre, Enterprise Hnit-Baltic, National land Survey) take part in annual meetings with programme students. The social partner proposed students research topics, professional practice themes and carrying out places. Every semester in study committee meetings social partners submit their proposals for program improvement also considering results of student feedback. The national Cartographic association has a clear link with the SP. This eases the exchanges between the teachers and the partners and reinforces especially the influence of this one. The students through the university quality assessment system have the possibility to present their view on the lectures of the semester. Even if it is not mandatory the results are used to consider these inputs for the curricula. Some teacher manage such survey by their own in order to enhance their lecture through a close interaction with students.

Some needs have been identified during the interview (students and partners): 3D modelling and simulation, programming language, knowledge in IT sciences.

The New SP BA in Cartography has been open in 2017. So the evolution of the MA SP will have to be looked carefully regarding the new SP in BA. The three major dimensions –land measurements, traditional mapping and GIS) of the MA might be changed due to rapid technological push and users abilities.

Information regarding SP implementation and facilities could be found on the web page.

III. RECOMMENDATIONS*

1. Continuous revision of the programme's aims and outcomes and the curriculum to provide acquaintance with and acquisition of the basic skills of scientific research and promote the development of a scientific mentality.
2. Curriculum should be extended at least on the field of Earth Observation. These are prerequisites if the implementation of all other recommendations is to be effective.
3. In consideration of the overtly applied character of the programme, restore student placements (internships) to the programme; this would enhance students' motivation, which is already high, and strengthen their platform for entering employment.
4. It is recommended to be sure that intellectual properties over students realizations (data, computing program or/and map) are clearly presented to the student at the beginning of the study program.
5. Major efforts should be taken to improve research performance of the study program staff, especially considering international publications and the existing approach integrating cartography in other Institute projects could considered as right direction. Also students research should include not only applications of cartography, but also analysis of the method development.

IV. SUMMARY

The learning outcomes of program „Cartography” comply with requirements of labour market in Lithuania research institutions, agencies and projects, consistent with generally expected outcomes of a graduate MSc program. The learning outcomes, program aims, study and research infrastructure can be considered as unique and certainly worthy of continued program support. The scope of the programme is sufficient to achieve the learning outcomes in respect to skills needed in labour market, but not much in respect to research skills in the field. The content of the programme only partly corresponds to the latest academic and technological achievements. Thus, it is recommended to review the curriculum taking into account the latest achievements in the field of Earth Observation. There is only limited research activity among the teaching staff and much of the published work is in Lithuanian journals. The same message was contained in the previous report but seems not to have been accepted or acted upon. The research output is quite unevenly spread among the staff but overall the level of research output is very low. The lack of research involvement is a key shortcoming that could easily be addressed through collaboration with staff in other study programmes. Considering the applied character of the programme it could be suggested to restore student placements (internships), to enhance students’ motivation and strengthen their platform for entering employment. It is recommended to be sure that intellectual properties over students realizations (data, computing program or/and map) are clearly presented to the student at the beginning of the study program.

V. GENERAL ASSESSMENT

The study programme *Cartography* (state code - 6211CX013, 621F87001) at Vilnius University is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

| No. | Evaluation Area | Evaluation of an area in points* |
|-----|--|----------------------------------|
| 1. | Programme aims and learning outcomes | 3 |
| 2. | Curriculum design | 2 |
| 3. | Teaching staff | 2 |
| 4. | Facilities and learning resources | 3 |
| 5. | Study process and students' performance assessment | 3 |
| 6. | Programme management | 3 |
| | Total: | 16 |

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;

2 (satisfactory) - meets the established minimum requirements, needs improvement;

3 (good) - the field develops systematically, has distinctive features;

4 (very good) - the field is exceptionally good.

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|---------------------------------|-------------------------------|
| Grupės vadovas: Team leader: | Prof. Maris Klavins |
| Grupės nariai: Team members: | Prof. Andrew Cooper |
| | Prof. Dr. Adam Weinrit |
| | Dr. Christiane Weber |
| | Mr. Sakalas Gorodeckis |
| | Mr. Dionyzas Šlimas |