STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Klaipėdos universiteto

JŪRŲ HIDROLOGIJOS PROGRAMOS (621F80001) VERTINIMO IŠVADOS

EVALUATION REPORT OF *MARINE HYDROLOGY* (621F80001) STUDY PROGRAMME

at Klaipeda University

Grupės vadovas:
Team Leader: Prof. Geoffrey Robinson

Grupės nariai:
Team members: Prof. Maris Klavins

Prof. Tommi Inkinen

Dr. Miglė Stančikaitė

Išvados parengtos anglų kalba
Report language – English

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	***Jūrų hidrologija***
Valstybinis kodas	621F80001
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	80
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Gamtinės geografijos magistras
Studijų programos įregistravimo data	2008-04-01 Nr. 1444

INFORMATION ON ASSESSED STUDY PROGRAMME

Name of the study programme	***Marine Hydrology***
State code	621F80001
Study area	Physical Sciences
Study field	Physical Geography
Kind of the study programme	University studies
Level of studies	Second cycle
Study mode (length in years)	Full-time (2)
Volume of the study programme in credits	80
Degree and (or) professional qualifications awarded	Master of Physical Geography
Date of registration of the study programme	2008-04-01 No. 1444

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I. INTRODUCTION

The external evaluation of the Master study programme in *Marine Hydrology* at Klaipėda University (hereafter, the University) was initiated by the Centre for Quality Assessment in Higher Education of Lithuania nominating the international expert group formed by Professor Geoffrey Robinson (University of St. Andrews, Scotland – team leader), Professor Tommi Inkinen (University of Helsinki, Finland), Professor Mari Klavins (University of Latvia, Latvia) and Dr. Miglė Stančikaitė (Institute of Geology and Geography of Nature Research Centre, Lithuania).

The evaluation of the study programme (hereafter, the programme) made use of the following documents: Law on Research and Higher Education of the Republic of Lithuania (2009); Order on External Evaluation and Accreditation Procedure of Study Programmes (2011); Methodology for Evaluation of Higher Education Study Programmes (2010); General Requirements for Undergraduate and Integrated Studies Programmes (2010) and Geography Study Field Regulation (2004).

The basis for the evaluation of the study programme is the Self-Assessment Report, written in 2011, its annexes and the site visit of the expert group to the University on 14 October 2011. The Geophysical Science Department (hereafter, the Department), located in the Faculty of Natural Sciences and Mathematics (the Faculty), is directly responsible for the programme, overseeing its delivery and monitoring. The site visit incorporated all required meetings with different groups: the administrative staff of the Faculty, staff responsible for preparing the self-assessment documents, teaching staff, students of all years of study, graduates, and employers. The expert group inspected various support facilities and resources (classrooms, laboratories, library, computer facilities), examined students' final works, and various other materials.

After discussions and preparations of conclusions and remarks, the expert group presented introductory general conclusions of the visit to the Department's self-assessment team. The group subsequently met to discuss and agree the content of the report, which represents the members' consensual views.

(It may be noted that both the Bachelor and Master programmes in Physical Geography are located in the same department within the same faculty. They share the same facilities; the same staff contributes to both programmes, albeit with different loadings; administration and management are essentially the same for both programmes; and employers who met with the evaluation team related to both programmes and interacted at department and faculty levels. The site visit covered both programmes simultaneously and, inevitably, the two evaluation reports have much in common.)

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The programme's main aim is to develop practitioners and research workers who are able creatively to apply their skills and acquired knowledge about marine and coastal natural systems

in scientific research and natural resources management and protection. The programme was created to deepen students' knowledge and increase their competence in marine science (oceanology) and to understand better the structural and functional changes in the coastal geosystem. Graduates from this programme should be able to use the newest environmental research tools and methods, as in such as GIS and geoinformatics, in oceanic and coastal regions. The basics of spatial-system modelling and skills of environmental planning and coastal-zone management are included in the programme's expected learning outcomes.

The programme aims are consistent with the type and level of studies, the title of the programme, and the level of qualifications offered. The learning outcomes have been formulated to take account of academic and professional requirements, public needs and the needs of the labour market. Both the formulated programme aims and learning outcomes are ambitious. The aims are closely related to the regional and national development plans to develop the rational use of natural (marine) resources. Klaipėda University is regarded as a main actor in the preparation of specialists in marine issues. The study plans are therefore of definite national importance and the formulation of programme aims and expected learning outcomes considers national needs. In formulating the aims and outcomes, staff participation within the EMUNI University programme was important. Comparing the programme content with similar study programmes in four other countries helps to direct the training of students towards a level where their degree qualification will indicate skills and knowledge commensurate with similar qualifications in other nations. Of considerable value in pursuing this aim is the delivery of most of the programme content in the English language.

Future prospects are closely linked with the actual and projected developments of the Maritime Valley. The opportunities to improve the infrastructure used for studies and research offered by this major development have greatly enthused the programme and Faculty administrative staff. The learning outcomes do cover major areas of skills and knowledge anticipated to further the projected regional and national developments. They include scientific skills that are required in the labour market and needed to start a research career. The experts, however, encountered a serious problem in evaluating the learning outcomes in the self-assessment report and in discussions with the programme staff. The wording of the learning outcomes has not translated well into English and their meaning is unclear. Even in the original Lithuanian, however, they inadequately reflect the actual content of the study programme. Lecturers are concerned to formulate clear learning outcomes for the various courses, but the formulations given in the self-assessment report are very general and not so easy to relate to the specific knowledge and skills acquired through a study course.

The experts also noted that 75 per cent of the expected learning outcomes are formulated in terms repetitive of those in the Department's related Bachelor programme. It is understood that the Masters programme is expected to deepen scientific knowledge and develop higher-level skills. The experts would encourage, however, a clearer match of outcomes to programme content and more transparent distinctiveness between the content and outcomes of the two physical geography programmes.

Another problem relates to the acquisition of other skills that are needed in the labour market. These are the generic or transferable skills that would probably increase the competiveness of graduates in the labour market. The programme is avowedly concerned with preparing professional research scientists and many Master graduates have found related employment or

proceeded to doctoral studies. Natural resources management and protection also feature in the programme's concerns and the Maritime Valley, which is so important to regional and national developments and the programme's future prospects, will promote interrelationships among marine research, studies and business. For graduates with scientific knowledge and well-developed transferable skills, employment opportunities are likely to open up in areas of applied science and in entrepreneurial and other business activities. Continuing attention to the programme's learning outcomes should regularly follow changes in the labour market and consideration of development trends in all areas included in the programme aims.

Main strengths and weaknesses

Strengths

The programme's great strength largely derives from its uniqueness in the Baltic states. This contributes to its definite and growing national and regional importance. The programme's aims and outcomes align with national and regional plans for the rational development of marine resources. They are regularly updated and enhanced.

Programme aims have been formulated in close cooperation with respected international partners, in seeking to develop international-standard qualifications.

Delivery of most courses in the English language is an important contribution to the pursuit of international standards for the programme and the employability of its graduates.

Employers and other social partners (research institutes, government bodies and local and regional agencies) collaborate in programme development. Close monitoring of trends in the labour market should ensure that programme developments keep pace with changes.

Weaknesses

The programme aims are well defined and clear but the learning outcomes are less well formulated, do not always reflect the programme content, and lack transparency in the distinctiveness of the Department's Bachelor and Master programmes in Physical Geography.

2. Curriculum design

The Marine Studies curriculum complies with the requirements of national legislation and conforms to the general aims of university education to train Physical Geography Master-level graduates in hydrology and oceanography. The programme combines a large proportion of obligatory courses with a significant number of electives, practical training, research development work (which includes further practical training) and the preparation of a final thesis. Losses of senior staff through illness and death, together with constraints of University finances, have meant the curtailment of some electives. Their restoration to the programme is planned. Fundamental subjects of Physical Geography are aimed at the development of scientific erudition and a broad world outlook. It is perhaps here that the further development of students' cognitive and transferable skills, which it has already been noted would strengthen the curriculum, can build on those already featuring in such subjects.

The study content and the student workload are spread evenly within the timetable, the courses are not repetitive and the contents of they are consistent with the level of Master studies. Important to the acquisition of requisite skills are practical studies; opportunities for practical

work and the resources available, both in the Faculty and in other areas of the University and partner research bodies have improved during recent years. A valuable component of the curriculum, in compliance with the Geography Field Regulation (2004), is *Geographical Field Practice Abroad*. Their experience of other European universities and marine research institutions introduces students to a variety of different oceanographic research equipment and laboratories, as well as to the diversity of other geographical environments. The provision of this experience, involving the Department's cooperation with institutions in Germany, Finland, Russia, Estonia and Poland, contributes to the pursuit of international standards for the programme. It is clear that the programme embodies many of the latest developments in the technologies and methods of the component subjects of marine studies.

The curriculum design process is well organised, benefits from close cooperation with major stakeholders and considers the national development trends. The process includes participation by staff and students, at the same time considering suggestions of other major stakeholders. Especially important are the views of employers and professional scientists, in the context of cooperating with research institutes and other bodies. The programme content reflects current trends in marine hydrology. Leading experts in the related subject fields deliver the study courses, mostly in the medium of English, already noted as strength of the programme. Lecturers' research activity contributes to the regular updating of the curriculum and the content of specific courses, with programme changes already planned through to 2015.

The content and methods of the study courses are appropriate for the achievement of the intended learning outcomes, especially with the already noted strengthening of students' opportunities for practical experience, which also improves employability. A good illustration is the case of a student's research activity as a research assistant in the Coastal Research and Planning Institute (COPRI) having led directly to employment there. Additionally, the preparation of the self-assessment report has raised awareness of the need for further improvements in the programme and its design process. Of particular note was the valued contribution of students to the self-assessment and recognition of the need to garner student reactions to continuing programme developments more systematically. The curriculum, together with existing and anticipated employment opportunities, support the popularity of the programme amongst graduates, both from the Department's related Bachelor programme and also from other programmes in Klaipeda and elsewhere.

Main strengths and weaknesses

Strengths

The curriculum design process takes cognisance of the needs and suggestions of all major stakeholders.

Lecturers' research activities, reflected in their teaching, are influential in ensuring that the curriculum embodies current trends in marine studies.

The curriculum provides increasing opportunities for practical experience, valued both by students and employers; *Geographical Field Practice Abroad* is an important element of that provision.

The curriculum enables the acquisition of knowledge and the development of skills needed to begin a scientific research career.

Weaknesses

The curriculum would benefit from more overt incorporation of a range of transferable skills that would enhance the employability of graduates from the programme.

3. Staff

The number of academic staff and their qualifications meet legal requirements. They are more than adequate to enable the achievement of expected learning outcomes. Staff turnover is well managed. Notwithstanding the short-term curtailment of electives noted under *Curriculum,* the running of the programme in respect of staff continuity seems to be sustainable.

The University provides help for the professional development of the teaching staff necessary for the delivery of the programme. The Faculty supports the development of research activities that, as noted above, are a positive influence on the curriculum. As a result, the overall performance of programme staff is good. Especially noteworthy is participation in EU Framework (usually some four projects are running), Interreg and other projects. Close cooperation with COPRI, an EU centre of excellence, helps to raise academic standards. Staff qualifications are continuously improving with the aid of support given to younger staff to complete their doctoral dissertations. Participation in the BONUS programme and summer schools contributes significantly to the research performance of staff. The University supports conference attendances by the staff and other funds to raise the level of research activities are also available. Publications in international and local journals are at a reasonable general level. Their attributions amongst the staff, however, are very uneven. There are a few evident leaders in research with a very good record of publication; other staff members' performance is modest. This situation needs to improve. There are salary incentives to raise the individual level of scientific activity but huge teaching loads are cited as a major obstacle to progress in this direction. It should be expected that every staff member undertakes research and publishes in a field related to the content of courses they teach. Students can reasonably expect to be taught by practitioners whose scientific activities inform their classes. This is generally but not always the case.

The University also promotes acquaintance with and, as appropriate, the adoption of new teaching and learning methods. Lecturers are encouraged to attend training courses to improve their pedagogical skills. There is evidence that the programme is benefiting from staff's participation in such courses. International exchanges and visiting lecturers also contribute informally to the staff's professional development. There remains a considerable shortfall, however, in the professional development of staff in teaching and learning in accordance with the various European trends, guidelines and agreements.

Already noted is the importance of practical knowledge and skills amongst the programme learning outcomes. The staff enjoys close and growing relationships and cooperation with private companies and other social partners, such as research institutes and state agencies, in ensuring the delivery of many of the programme's practical elements. The processes of keeping the programme up to date, viable and sustainable also benefit from these relationships.

Main strengths and weaknesses

Strengths

The programme is in the hands of an enthusiastic and well-qualified staff, which supports the quality of the studies and enables the achievement of the expected learning outcomes.

The staff's close relationships with local professional partners positively contribute to the enhanced delivery of the programme's practical components.

The staff's general profile of research activity is good, further supporting the quality of studies. The general profile reflects in particular the contributions of some very active research leaders.

Weaknesses

Participation in research activities by some members of staff is very limited and professional development in teaching and learning is far from meeting EU standards.

4. Facilities and learning resources

The physical resources available for studies have greatly improved since the 2007 evaluation of other programmes in the Faculty. The improvements, which are clearly at a transitional stage, are primarily the result of taking opportunities provided by the University's participation in the Maritime Valley development. At present, laboratory equipment is generally adequate for studies although the laboratories themselves are rather small, even given the small number of students following the Master programme. Other premises and study facilities are generally adequate, both in size and quality. The computer classrooms and software available within the Faculty and elsewhere in the University suffice for the achievement of learning outcomes.

Arrangements for students' practice are good. Of particular note are opportunities for practical experience on the Department's research and training vessels, especially the schooner *Brabanderis*. Already remarked upon as providing valuable practice opportunities is the programme element *Geographical Field Practice Abroad*. The recently increased emphasis on practical training is greatly appreciated by students and welcomed by professional partners. These provide many practice placements, short-term apprenticeships and access to specialist equipment and facilities, which broaden students' choice of thesis topic; effectively, the use of facilities elsewhere in the University and cooperation with research institutes and departments of state agencies, for example the Marine Research Department of the Ministry of Environment, provides cover for the present gaps in the Department's own provision. The Department is involved in development projects and investment plans that are expected to close those resource gaps by upgrading and updating laboratory and experimental facilities.

Library resources do not satisfy student requirements, particularly in the provision of course textbooks. A specific aspect of this inadequate provision is the small holdings of key texts in the English language; this offers poor support for the delivery of most courses in English. Although the availability of full-text electronic databases is admirable, it cannot satisfy all needs; the absence of references to electronic sources in student theses indicates that the databases are not playing their expected role in learning.

Main strengths and weaknesses

Strengths

Improvements in the physical resources have already accompanied the University's participation in the Maritime Valley development. Continuing involvement has led to investment plans and procurement procedures to strengthen further the research and learning infrastructure.

The programme benefits from excellent arrangements for student practices, especially as a result of cooperation with research institutes and other professional partners.

Weaknesses

Library resources have particular weaknesses; the availability of course textbooks and the holdings of key texts in the English language are inadequate, especially in view of the delivery of the large majority of courses in English.

5. Study process and student assessment

Admission requirements are tightly regulated. Students holding a Bachelor degree in physical geography, physics and environmental engineering can be enrolled without entrance examinations but are subject to a points' competition based on their performance at first-cycle studies. Other graduates must sit an entrance examination. The programme's popularity among applicants has enabled the University to keep the points' requirement for entry at a high level. Recruitment has hence been of well-qualified and motivated students, some with their points score enhanced by awards for prior scientific publications. A limitation in the number of state-funded places has led to some entrants failing to progress to the second year of study. New opportunities for funding have arisen, however, in the support of students by the Maritime Valley programme. Hence, all eight students who entered in 2010 have funded places.

The organisation of the study process ensures an adequate provision of the programme and the achievement of expected learning outcomes. Independent learning, practice and student research feature strongly in the programme, although the self-assessment report identifies motivation to lifelong learning as a task needing still more attention. An important element of research training is reporting research work at an annual students' conference. Practical training is well managed. The importance of practice placements (internships, apprenticeships)) in the curriculum has already been noted; students acquire valuable practical experience, improve their research skills and establish contacts with future employers. Graduates demonstrate their acquisition of requisite knowledge and skills in their progression to further studies and professional employment; the great majority of graduates meet or exceed the programme provider's expectations.

The delivery of most study courses in the English language, acknowledged in earlier sections of the report, is a significant contribution towards increasing the programme's quality and its internationalisation. Despite the undoubted difficulties this currently presents for some students, the student view is that the positives outweigh the negatives and they strongly support this development in the programme. During their studies, they are better able to take up exchange opportunities within the Erasmus scheme and the degree programme is more attractive to incoming exchange students. Future career prospects are also enhanced.

Students receive good academic and social support and can call upon financial support for a variety of contingencies. They receive clear and timely information about delivery of the programme and the assessing of their performance. Students understand the methods and procedures involved and have opportunities to discuss their own progress with the academic staff. Assessment procedures are well regulated. The system of resolving areas of dispute by students and the provision of opportunities to repeat an academic subject appears to be

functioning well. Procedures for preparing and defending the final thesis are clear and rigorous. Assessment prompted no complaints from students and there were few areas of concern for the external evaluation team. One aspect that puzzled the experts, however, was the grading of theses. Almost all received high marks in contrast to the more normal distribution that characterised academic performance overall, but this seems to be a feature of all other Lithuanian geography programmes that the team reviewed. The credits for the Master thesis are 25 percent of those for the whole programme and the associated activities are important elements in the acquisition of requisite skills. In almost all the theses that the external evaluation team scrutinised, students had applied inappropriate statistical methods to data they had collected. This certainly did not help the interpretations of the results. Appropriate methods could have led to more meaningful convincing conclusions. The programme team should consider the appropriateness of the statistical methods employed by almost all the students to analyse the data sets that they collect. It is in the quality of the theses and the level of analysis that the programme standards depart most from those prevalent throughout Europe.

Main strengths and weaknesses

Strengths

Admission procedures and requirements are good, resulting in the recruitment of well-qualified and motivated students.

Study processes are well organised and enable the achievement of the expected learning outcomes; international and local opportunities for practice and research with marine and coastal scientists play increasingly important parts in the students' acquisition of requisite knowledge and skills.

Delivery of most courses in the English language greatly enhances the programme.

The assessment system is clear, well understood by students and has some innovative features.

Students appear to be well supported, academically, socially and, within present constraints, financially; they presented to the evaluation team as generally happy, enthusiastic and well motivated.

Weaknesses

The MSc theses display significant flaws in the statistical analysis of data and their attendant interpretation; this indicates a need to look critically at the delivery and understanding of data analysis and the high grading of theses that display these flaws.

6. Programme management

Both strategic planning and every-day concerns are handled at Department level. The Head of the Department has immediate responsibility for the programme's administration and operation. Changes entailed by programme planning and development are described as collegial, the result of regular Department meetings. The concerns of all stakeholders are considered, including employers and other social partners. Student views are taken into account in programme planning; examples of recent student-initiated changes are an increased mathematics content and more practical experience provided in the programme. And students' requests for additional

experience of remote sensing, more optional GIS modules and the integration of more GIS into other subject exercises are highlighted in current programme planning.

The membership and responsibilities of the relevant Commissions operating at the two higher levels of the management structure, Faculty and University, are clearly articulated. These Commissions appear to support well the programme's organisation and implementation. Among the considerations are efficient cooperation with research institutes and other social partners, fundraising activities and plans for development and investment. The University's participation in the Maritime Valley and other projects can be seen as a strong influence on planning that is already impacting on programme developments.

The University has developed an effective new internal quality assurance system over the past five years. Each of the three management levels have clearly assigned roles in periodic review and monitoring processes. Of great help for programme improvement are students' opinions about the quality of studies and the objectivity of assessments. Data has been collected over the last six years in a web-based survey system. This has allowed the monitoring of the content and teaching of particular courses and led to appropriate corrections. Additionally, improvement of the programme considers the outcomes and recommendations of previous internal and external review exercises. Already articulated are lessons learned from the self-assessment exercise that began this external evaluation.

Main strengths and weaknesses

Strengths

Programme management at Department level is collegial and effective.

Faculty and University levels of the management structure support well the programme's organisation and operation.

Management of the University's participation in regional projects is already a component of strategic planning that affects programme developments.

Students' opinions are valued at all levels of the planning and quality-assurance systems and help to improve the running of the programme.

III. RECOMMENDATIONS

1. Review the formulation of expected learning outcomes so that they clearly reflect the programme content and ensure the distinctiveness of the Department's Bachelor and Master programmes in Physical Geography is transparent.
2. Review the curriculum so as to follow trends in the labour market and incorporate an overt range of transferable skills that will enhance the employability of graduates from the programme.
3. Encourage and facilitate participation in research activities by all members of staff and raise their level of professional development in teaching and learning in the direction of meeting EU standards.
4. Continue to improve the learning resources, particularly with regard to projected investments in the physical infrastructure, and extend the investments to include library resources, especially course textbooks and key texts in the English language.
5. Review thoroughly the grading standards of the Master thesis, paying particular attention to the evaluation criteria and the need to employ statistical analytical methods that are appropriate to the characteristics of the data and the research questions being asked.

IV. GENERAL ASSESSMENT

The study programme Marine Hydrology (state code – 621F80001) is given **positive** evaluation.

Study programme assessment in points by fields of assessment.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	3
3.	Staff	3
4.	Material resources	3
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	4
	Total:	**19**

*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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