



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

**KLAIPĖDOS UNIVERSITETO JŪROS APLINKOS
INŽINERIJOS STUDIJŲ PROGRAMOS (621H17005)
VERTINIMO IŠVADOS**

**EVALUATION REPORT OF *MARINE ENVIRONMENT
ENGINEERING* (621H17005) STUDY PROGRAMME at
KLAIPEDA UNIVERSITY**

Grupės vadovas:
Team Leader:

Prof. Dr. Petras Punys

Grupės nariai:
Team members:

Prof. Dr.-Ing. Silke Ursula Wieprecht

Dr. Chem. Sarma Valtere

M.Sc. Kęstutis Skrupskelis

Išvados parengtos anglų kalba
Report language - English

Vilnius
2012

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Jūros aplinkos inžinerija</i>
Valstybinis kodas	621H17005
Studijų sritis	Technologijos mokslai
Studijų kryptis	Bendroji inžinerija
Studijų programos rūšis	Universitetinės
Studijų pakopa	Antroji
Studijų forma (trukmė metais)	Nuolatinė (2)
Studijų programos apimtis kreditais	120
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Aplinkos inžinerijos magistras
Studijų programos įregistravimo data	1997-05-19 Nr. 565

INFORMATION ON ASSESSED STUDY PROGRAMME

Name of the study programme	<i>Marine Environment Engineering</i>
State code	621H17005
Study area	Technological Sciences
Study field	General Engineering
Kind of the study programme	University studies
Level of studies	Second
Study mode (length in years)	Full-time (2)
Scope of the study programme in credits	120
Degree and (or) professional qualifications awarded	Master in Environmental Engineering
Date of registration of the study programme	1997-05-19 Nr. 565

© Studijų kokybės vertinimo centras
The Centre for Quality Assessment in Higher Education

CONTENTS

CONTENTS	3
I. INTRODUCTION.....	4
II. PROGRAMME ANALYSIS	4
1. Programme aims and learning outcomes.....	4
2. Curriculum design	5
3. Staff	6
4. Facilities and learning resources	6
5. Study process and student assessment.....	6
6. Programme management	7
III. RECOMMENDATIONS	7
IV. SUMMARY	7

I. INTRODUCTION

The external assessment procedures of the study programme were initiated by the Centre for Quality Assessment in Higher Education in Lithuania nominating the external assessment peer group of Prof. Petras Punys (Lithuania – Chairman), Prof. Silke Ursula Wieprecht (Germany), Dr. Sarma Valtere (Latvia), M.Sc. Kęstutis Skrupskelis (Lithuania).

The basis for the evaluation report is the written Self-Assessment Report (SAR), its annexes and the site visit of the experts on 13th September 2012. During this visit the experts reviewed the organisation of the programme, the way in which the curriculum is designed, the way the quality is assured, the qualification of the staff, facilities and learning resources, study process, students assessment and programme management.

The Master's degree study programme of *Marine Environmental Engineering* is implemented by the Department of Technological Processes of the Klaipeda University (KU) Faculty of Marine Engineering (FME) (hereafter called the Department) and the Ecology Department of the Faculty of Natural Sciences and Mathematics (FNSM). This Department is implementing also the first study cycle programme in Environmental Engineering.

The offered programme Marine Environmental Engineering is very challenging; it is a unique speciality in the country.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The specialization in the Master's programme on **Marine Environmental Engineering** is highly appreciated and provides a unique potential for an education in a field which already has and will have a high importance for the future. Due to the regional structure of the city of Klaipeda and its coastal location it is predestinated to host a Master's programme with a specialization in marine issues.

With the background and basic knowledge which the students are bringing from their Bachelor's studies this specific focus trains them for the specific labour market. The programme aims and learning outcomes are based on the academic and professional requirements and public needs. The content of the study programme is balanced comparing theoretical and practical experience.

The name of the programme fits well with the learning outcomes. However the statement in the Self Assessment Report (SAR) about the aim to educate engineers who are capable of solving regional problems in the Baltic Sea and the ocean should be revisited seriously. The opening of the programme for general objectives in marine environmental engineering as well in terms of subjects as towards the integration of international lecturers and students would further increase the attractiveness and the quality of the programme.

2. Curriculum design

The curriculum design meets the legal requirements, modules are spread evenly comparing basics, theoretical and practical engineering subjects.

For the majority of the subjects their content is consistent with the type and level of the studies. Nevertheless it is recommended to screen the Master's curriculum and align with the curriculum of the Bachelor's programme.

Some subjects would – with their actual content – better serve on a Bachelor's level. But simultaneously the same subject could contribute considerably to a refinement of the Master's programme if there was more focus on marine and coastal issues. In the following the details shall be given exemplarily for two subjects:

- Actually the subject “Renewable Energy” gives an overview of several renewable sources (hydro power, wind, solar, biogas) focusing mainly onto inland renewables. It would be favourable to teach these contents to Bachelor's students. On the Master's level one would expect specific marine energy knowledge, as use of wave energy, sea currents, hydrokinetics or skills and problems of off-shore wind or exploitation of potentials due to temperature or salinity differences.
- The subject “GIS in Environment Protection” deals with the basics of GIS application and touches only sparsely specific environmental protection issues. It would be favourable to teach this content to Bachelor's students. On the Master's level one would expect specific marine or coastal issues in GIS and its applications.

The content of the programme mostly reflects the latest achievements in science and technologies. However, some descriptions of the subjects strongly need an update. For instance, module “Pollution Prevention” lacks “marine component” (neither themes nor relevant references are proposed). Only purely inland oriented issues are considered there. In contrast, a good example for incorporating “marine” issues is the subject “Coastal Zone Management”. Furthermore, the students must be familiarised with a relevant EU coastal and marine policy (e.g., Marine Strategy Framework Directive).

A number of subjects provide only Lithuanian references that are not adequate for master students. Just a few to note: “Preserved development of port”, “Ecological modelling”, “Research basics”. The latter offers to search additional literature onto a very global online data base. It is strongly recommended to update similar descriptions of the study program (subjects/modules).

The content and methods which are applied to achieve the intended learning outcomes are appropriate. In order to pursue the goal to open the programme from the more regional focus to a more international level it is indispensable to offer sufficient subjects in English language either by inviting international experts (giving single courses, summer schools, short courses, etc.) or by the permanent staff members. The reading of articles, books and journals is self-evident but is insufficient to maintain or increase the students' language skills.

The scope of the programme is basically sufficient to ensure the learning outcomes. In order to reach the level of a highly accepted Master's programme on the national level and potentially also on the international level more connection to scientific and/or research projects are recommended. This can be both on the subject level as well as in the Master's Thesis.

3. Staff

The high qualification of the teaching staff is adequate to ensure the intended learning outcomes. The legal requirements are fulfilled.

The staff turnover during the assessment period was relatively low. A number of young scientists and teachers are deepening their knowledge in doctoral studies and are supporting the study process.

In terms of quantity the number of teaching staff is adequate. But work load within the staff members is unevenly distributed. Depending on the competences and teaching quality the distribution of the work load should be reviewed.

The teaching staff members find good conditions for their professional development and the staff turnover is able to ensure adequate provision of the programme. Those teachers who are involving master students encourage them to take part in research projects related to their specialization. However, in the last two years only few Master's Thesis deal with topics closely related to **Marine** environmental engineering.

4. Facilities and learning resources

At Klaipeda University very good premises for studies can be found. They are adequate in their size and quality. Also the teaching and learning equipment can be evaluated as excellent. The provided facilities for laboratory equipment are on the latest standard. This has a positive impact on the offers for students for practice.

Students are using open-code (freeware) software and have free access to licensed software programs in computer classes. It is recommended to use more widely numerical modelling software in solving actual marine environmental engineering issues. Only a few Master theses were indentified to apply specialised state of the art tools. The library offers access to online publications in numerous scientific journals that is a common practice for all universities in the country. However there is a lack of hard copy marine environmental engineering books in the faculty library,

5. Study process and student assessment

The admission requirements for master studies are well-founded. The organisation of the study process ensures provision of the programme and the achievement of the learning outcomes. Actually a course management system (CMS) which provides a virtual learning environment like e.g. „Moodle“ is just at starting position, thus the distance learning system does not yet work properly. It is highly recommended to implement a CMS in due time as a mandatory platform for all staff members.

Students are encouraged to participate in research activities and student mobility programs. But only few master students are going abroad for studies, practice or Master's Thesis.

Some doubts are stemming from a progressively decreased number of admitted students to the programme, especially for the past few years. It is clear that this process is hardly to be managed by the responsible Department or Faculty because the tuition fee plays a major role for student's choice of the speciality. One can state that Klaipeda University does not ensure an adequate level

of academic and social support in terms of scholarships. There are merely few state funded places. In 2012 there were only three scholarships available. This led to the situation that only these three scholarship-holders inscribed in the Master's programme. It is highly recommended to start negotiations with employers and companies in order to initiate cooperation activities which might be an origin for additional financial support of students.

The assessment system of students' performance is clear, adequate and publicly available.

Professional activities of graduates meet the programme providers expectations.

6. Programme management

The responsibilities for decisions and the monitoring of the implementation of the programme are clearly allocated. The evaluation of the programme management is based on regularly collected and analysed data. The results are discussed internally in respective meetings of the faculty. Additionally the results are provided on the websites. Hitherto, the outcomes of internal and external evaluations are not used for further improvements of the programme.

There is a close exchange between stakeholders and the persons responsible for the programme. Employers are satisfied with level and knowledge of graduates. Due to the small number of graduates there is a lack of graduated students on the labour market. This underlines the necessity for more scholarships and state funded places on Master studies. Thus additional agreements between stakeholders and KU are highly recommended.

III. RECOMMENDATIONS

1. Include more "Marine oriented" subjects in to the study programme;
2. Implement a course management system (e.g., e-learning software platform "Moodle") in due time as a mandatory platform for all staff members.
3. Not only visiting teachers can provide lectures in foreign language (English) for students, teachers of the permanent staff are welcome too.
4. Revise and update descriptions of the subjects including up-to-date international references and focusing on marine environment and coastal zone management engineering issues.
5. Numerical modelling including specialised software should be more widely used for the Master's theses.
6. Find possibility to fund more study places for students in Master degree

IV. SUMMARY

The programme aims and learning outcomes are based on the academic and professional requirements and public needs. The specialization in the Master's on **Marine Environmental Engineering** is highly appreciated and provides a unique potential for an education in a field which already has and will have a high importance for the future.

The name of the programme fits well with the learning outcomes. However the opening of the programme for general objectives in marine environmental engineering as well in terms of subjects as towards the integration of international lecturers and students would further increase the attractiveness and the quality of the programme. In order to pursue the goal to open the programme from the more regional focus to a more international level it is indispensable to offer

sufficient subjects in English language either by inviting international experts (giving single courses, summer schools, short courses, etc.) or by the permanent staff members.

For the majority of the subjects their content is consistent with the type and level of the studies. Nevertheless it is recommended to screen the Master's curriculum and align with the curriculum of the Bachelor's programme. Some subjects would – with their actual content – better serve on a Bachelor's level. But simultaneously the same subject could contribute considerably to a refinement of the Master's programme if there was more focus on marine and coastal issues.

The highly qualified teaching staff members find good conditions for their professional development and the staff turnover is able to ensure adequate provision of the programme.

Klaipeda University does not ensure an adequate number of scholarships. There are only few state funded places. In 2012 there were only three scholarships available. It is highly recommended to start negotiations with employers and companies in order to initiate cooperation activities which might be an origin for financial support of students.

V. GENERAL ASSESSMENT

The study programme *Marine Environment Engineering* (state code – 621H17005) at Klaipėda University 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	2
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)	3
	Total:	17

*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.

Grupės vadovas:
Team Leader:

Prof. Dr. Petras Punys

Grupės nariai:
Team members:

Prof. Dr.-Ing. Silke Ursula Wieprecht

Dr. Chem. Sarma Valtėre

M. Sc. Kęstutis Skrupskelis