



**Report  
of the Expert Panel  
on the Reaccreditation  
of the University Postgraduate (Doctoral) Programme  
*Oceanology*  
Faculty of Science, University of Zagreb**

**Date of the visit:**  
— April 9<sup>th</sup>, 2018

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## INTRODUCTION

The Expert Panel appointed by the Agency for Science and Higher Education (ASHE) created this Report on the Re-accreditation of the University Postgraduate (Doctoral) Programme Oceanology on the basis of the Self-Evaluation Report of the Programme, other documentation submitted and a visit to the Faculty of Science, University of Zagreb.

The Agency for Science and Higher Education (ASHE), a public body listed in EQAR (European Quality Assurance Register for Higher Education) and a full member of ENQA (European Association for Quality Assurance in Higher Education), re-accredits higher education institutions (hereinafter: HEIs) and their study programmes in line with the Act on Quality Assurance in Science and Higher Education (Official Gazette 45/09) and the Ordinance on the Content of a Licence and Conditions for Issuing a Licence for Performing Higher Education Activity, Carrying out a Study Programme and Re-Accreditation of Higher Education Institutions (OG 24/10). In this procedure parts of activities of higher education institutions and university postgraduate study programmes are re-accredited.

Expert Panel is appointed by the Agency's Accreditation Council, an independent expert body, to carry out independent evaluation of post-graduate university study programmes.

The Report contains the following elements:

- Short description of the study programme
- The recommendation of the Expert Panel to the Agency's Accreditation Council
- Recommendations for institutional improvement and measures to be implemented in the following period (and checked within a follow-up procedure)
- A brief analysis of the institutional advantages and disadvantages
- A list of good practices found at the institution
- Conclusions on compliance with the prescribed conditions of delivery of a study programme
- Conclusions on compliance with the criteria for quality assessment.

Members of the Expert Panel:

- Mark Davies, Professor, Faculty of Health Sciences and Wellbeing, Sunderland University, United Kingdom of Great Britain and Northern Ireland, President of the Expert Panel
- Matthias Senge, Chair of Organic Chemistry, Trinity College Dublin, Ireland
- R. J. Pieters, Chair of Chemical Biology of Multivalent Systems, Utrecht University, Netherlands
- Fabian Cerda, Max Planck Institute of Biochemistry, Germany
- Marianne Holmer, Professor, Head of Department of Biology, Syddansk Universitet, Denmark
- Isabel Sa Nogueira, Associate Professor, Head of Laboratory, Faculdade de Ciências e Tecnologia Universidade Nova de Lisboa, Portugal
- Inger Elisabeth Maren, Department of Biological Sciences, University of Bergen, Norway
- Peter Bennett, Reader in Biodiversity and Evolutionary Ecology, University of Kent, United Kingdom of Great Britain and Northern Ireland
- Domagoj Vugić, doctoral student, Institut Curie, France

- Maalte Braack, Director of Mathematical Seminar, Christian-Albrechts-Universität, Kiel, Germany
- Barbara Drinovec Drnovšek, Professor, Fakulteta za matematiko in fiziko, Univerza v Ljubljani, Slovenia
- Sebastian Eterovic, doctoral student, Mathematical Institute, University of Oxford, United Kingdom of Great Britain and Northern Ireland
- Donald Bruce Dingwell, Department for Earth and Environmental Sciences Chair of Mineralogy and Petrology, Ludwig-Maximilians-Universität München, Germany
- Giovanni B. Andreozzi, Coordinator of the Ph.D. programme in Earth Sciences, Sapienza Università di Roma, Italia
- Ponfa Roy Bitrus, doctoral student, Department of Geology and Petroleum Geology, University of Aberdeen, United Kingdom of Great Britain and Northern Ireland
- Anders Omstedt, Professor Emeritus, Department of Marine Sciences, The Faculty of Science, University of Gothenburg, Sweden
- Rafael Laso Perez, doctoral student, Max Planck Institute for Marine Microbiology, Germany
- Kai-Olaf Hinrichsen, Professor, Technische Universität München, Germany
- Alexandra Pinto, Associate Professor, Director of PhD programme in Chemical and Biological Engineering, Universidade de Porto, Portugal
- Mohamed Hussien, doctoral student, Faculty of Chemistry and Pharmacy, L. M. Universität München, Germany
- Mikael Rinne, Associate Professor, Aalto University, Finland.

The higher education institution was visited by the following Expert Panel members:

- Anders Omstedt, Professor Emeritus, Department of Marine Sciences, The Faculty of Science, University of Gothenburg, Sweden
- Mark Davies, Professor, Faculty of Health Sciences and Wellbeing, Sunderland University, United Kingdom of Great Britain and Northern Ireland
- Rafael Laso Pérez, doctoral student, Max Planck Institute for Marine Microbiology, Germany.

In the analysis of the documentation, site visit and writing of the report the Panel was supported by:

- Alma Agović, coordinator, ASHE
- Lida Lamza, interpreter at the site visit and translator of the Report, ASHE.

During the visit to the Institution the Expert Panel held meetings with the representatives of the following groups:

- Management
- Study programme coordinators
- Doctoral candidates
- Teachers and supervisors
- External stakeholders
- Alumni

## **SHORT DESCRIPTION OF THE STUDY PROGRAMME**

**Name of the study programme contained in the licence:** Oceanology

**Institution delivering the programme:** Faculty of Science of the University of Zagreb

**Institution providing the programme:** Faculty of Science – University of Zagreb

**Collaborating Research Institutes:** Ruđer Bošković Institute Zagreb/Rovinj, Institute of Oceanography and Fisheries in Split, Institute for Marine and Coastal Research of the University of Dubrovnik.

**Place of delivery:** Zagreb/Split/Dubrovnik/Rovinj

**Scientific area and field:** Natural Sciences, Interdisciplinary Natural Sciences

**Number of doctoral candidates:** 26

Number of funded candidates: 22 (1 by HEI, 21 by the institutes)

Number of self-funded doctoral candidates: 4

**Number of teachers:** 56 (9 Faculty, 45 from the collaborating institutes and 2 external teachers).

**Number of potential supervisors in total:** 42

**Number of official appointed supervisors:** 9

Number of study advisors: 18

Number of doctoral candidates to whom a supervisor was officially appointed: 8

Number of doctoral candidates to whom a study advisor was appointed: 18

**Taught (courses)/research ratio (in ECTS):** 36/180 ECTS

**Learning outcomes of the study programme:**

1. Knowledge and Reasoning

1. To recognize and interpret the existing contemporary scientific knowledge
2. Interpretation of contemporary scientific knowledge on the factual and conceptual level in accordance with the most recent scientific knowledge and in correlation with related scientific disciplines (physics, chemistry, biology, geology)
3. Understanding and capacity of adequate use of field research methods, experimental/laboratory work and modelling

2. Comprehension Skills

1. Implementation of acquired knowledge into the definition of a scientific problem and selection of the research methods
2. Capacity of interpretation, relation and evaluation of one own research results and their critical evaluation in comparison with the available reference works
3. Capacity of performing complex experiments and procedures in research

3. Psychomotor Skills

1. Capacity for adequate and critical use of research techniques and methods of own area of research and capacity for their adjustment to the specific needs
2. Capacity for organisation and performance of field research
3. Capacity of development of new models for the interpretation of experimental results

4. Social Skills

1. To defend hypotheses, methods, attitudes, results and conclusions of own research
2. Writing and reporting skills, capacity of presentation of results of own and others' research in scientific form and required format, whether in oral or in written form

3. Knowledge of ethics principles, rights and obligations governing human and professional relationships among the teachers, researchers, students and administration staff forming part of the research and education community.
5. Independence
    1. Qualification for participation in a research team activities and adjustment to the work environment requirements
    2. Independence in the following of new knowledge in the field of marine science and evaluation of its scientific reach
    3. Capacity of independent resolution of most steps in the process of publication of a research paper and in the communication with the journals' editorial boards
6. Responsibility
    1. Knowledge of highest ethics standards of responsible research performance and publication
    2. Practicing the ethics principles as set out in the international and national laws and regulations about animal care; protection and protection/care of animals in researched ecosystems and experimental animals
    3. Responsible use and interpretation of the research results of scientific/professional analyses through public appearances and through media.

## ***RECOMMENDATION BY THE EXPERT PANEL TO THE ASHE'S ACCREDITATION COUNCIL***

Upon the completion of the re-accreditation procedure and the examination of the materials submitted (Self-Evaluation Report etc.), the visit to the higher education institution and interviews with HEI members in accordance with the visit protocol, the Expert Panel renders its opinion in which it recommends to the Accreditation Council of the Agency the following:

**Issue a confirmation on compliance** for performing parts of activities (renew the licence).

### ***RECOMMENDATIONS FOR THE IMPROVEMENT OF THE STUDY PROGRAMME***

1. The external member of the PhD evaluation committee must be external to the University and the relevant partner institutions.
2. The programme should do more to attract international applicants.
3. It is recommended that the HEI/programme develop and implement a scheme for training supervisors in doctoral supervision.
4. The HEI should implement a scheme to ensure that the qualifications and competencies of teachers (including those of partner institutions) meet with the HEI's general requirements for teaching staff.
5. It should be ensured that students have access to the full range of bibliographic material needed for their studies.
6. The HEI should ensure that staff makes use of the published learning outcomes in both teaching and assessment.
7. HEI should implement a scheme for maintaining oversight of the effectiveness of teaching, including assessment of the quality of teaching methods deployed.
8. The mandatory provision in general (transferable) skills should be greatly expanded in the programme, for example, in relation to statistical techniques.
9. The programme should implement a strategy to promote student interaction within the doctoral studies.

### ***ADVANTAGES OF THE STUDY PROGRAMME***

1. The model that the programme presents, with a single-hub university providing a doctoral programme for four research institutes, is very effective and provides Croatia with an enhanced platform for developing project-based oceanological research.
2. The ratio of supervisors/teachers to students is really favourable and provides strong support to the students.
3. The large number of available courses promotes transdisciplinarity and allows effective student choice.

### ***DISADVANTAGES OF THE STUDY PROGRAMME***

1. Lack of interaction between students on the programme due to geographical separation.
2. Accessibility of information was difficult. Much of the material supplied was in Croatian and therefore inaccessible to the Expert Panel. Furthermore, the Self-Evaluation Report was only weakly evaluative and, in many cases, did not even effectively describe the programme's position.

3. Student work, especially theses, should be routinely checked for plagiarism and other forms of academic misconduct.
4. The rights of the students are not well defined.
5. Visibility on the university home page is weak, and information about Oceanology should be made clearer with the aim of attracting more, especially international, applicants.

***EXAMPLE OF GOOD PRACTICE***

1. Clear connection between marine monitoring and education in Oceanology.



**COMPLIANCE WITH THE PRESCRIBED CONDITIONS FOR THE DELIVERY OF A STUDY PROGRAMME**

<b>Minimal legal conditions:</b>	<b>YES/NO Notes</b>
1. Higher education institution (HEI) is listed in the Register of Scientific Organisations in the scientific area of the programme, and has a positive reaccreditation decision on performing higher education activities and scientific activity.	<b>YES</b>
2. HEI delivers programmes in the two cycles leading to the doctoral programme, i.e., first two cycles in the same area and field/fields (for interdisciplinary programmes), and employs a sufficient number of teachers as defined by Article 6 of the Ordinance on the Content of a Licence and Conditions for Issuing a Licence for Performing Higher Education Activity, Carrying out a Study Programme and Re-Accreditation of Higher Education Institutions (OG 24/10).	<b>YES</b>
3. HEI employs a sufficient number of researchers, as defined by Article 7 of the Ordinance on Conditions for Issuing Licence for Scientific Activity, Conditions for Re-Accreditation of Scientific Organisations and Content of Licence (OG 83/2010).	<b>YES</b>
4. At least 50% of teaching as expressed in norm-hours is delivered by teachers employed at the HEI (full-time, elected into scientific-teaching titles).	<b>NO*</b>
<b>*Not on its own (29%) but 75% of the core/mandatory courses is covered by the PMF staff, while with collaborating research institutes, this is up to 100%. This programme was initially accredited together with the 3 public research institutes (as a joint degree) while this was legally acceptable.</b>	
5. Student: teacher ratio at the HEI is below 1:30.	<b>YES</b>
6. HEI ensures that doctoral theses are public.	<b>YES</b>
7. HEI launches the procedure of revoking the academic title if it is determined that it has been attained contrary to the conditions stipulated for its attainment, by severe violation of the studying rules or based on a doctoral thesis (dissertation) that has proved to be a plagiarism or a forgery according to provisions of the statute or other enactments.	<b>YES</b>
<b>Additional/ recommended conditions of the ASHE Accreditation Council for passing a positive opinion</b>	
1. HEI (or HEIs in joint programmes) has at least five teachers appointed to scientific-teaching titles in the field, or fields relevant for the programme involved in its delivery.	<b>YES</b>
2. In the most recent reaccreditation, HEI had the standard Scientific and Professional Activity marked as at least "partly implemented" (3).	<b>YES</b>
3. The doctoral programme is aligned with the HEI's research strategy.	<b>YES</b>
4. The candidate : supervisor ratio at the HEI is not above 3:1.	<b>YES</b>
5. All supervisors meet the following conditions: a) PhD, elected into a scientific title, holds a scientific or a scientific-teaching position and/or has at least two years of postdoctoral research experience;	a) <b>YES</b> b) <b>YES</b>

<p>b) active researcher in the scientific area of the programme, as evidenced by publications, participation in scientific conferences and/or projects in the past five years (table 2, Supervisors and candidates);</p> <p>c) confirms feasibility of the draft research plan upon admission of the candidate (or submission of the proposal);</p> <p>d) ensures the conditions (and funding) necessary to implement the candidate's research (in line with the draft research plan) as a research project leader, co-leader, participant, collaborator or in other ways;</p> <p>e) trained for the role before assuming it (through workshops, co-supervisions etc.);</p> <p>f) received a positive opinion of the HEI on previous supervisory work.</p>	<p>c) <b>YES</b></p> <p>d) <b>YES</b></p> <p>e) <b>NO</b></p> <p>f) <b>YES</b></p>
<p>6. All teachers meet the following conditions:</p> <p>a) holds a scientific or a scientific-teaching position;</p> <p>b) active researcher, recognized in the field relevant for the course (table 1, Teachers).</p>	<p>a) <b>YES</b></p> <p>b) <b>YES</b></p>
<p>7. The supervisor normally does not participate in the assessment committees.</p>	<p><b>YES</b></p>
<p>8. The programme ensures that all candidates spend at least three years doing independent research (while studying, individually, within or outside courses), which includes writing the thesis, publishing, participating in international conferences, field work, attending courses relevant for research etc.</p>	<p><b>YES</b></p>

## QUALITY ASSESSMENT

<p><b>1. RESOURCES: TEACHERS, SUPERVISORS, RESEARCH CAPACITIES AND INFRASTRUCTURE</b></p>	
<p>1.1. HEI is distinguished by its scientific/ artistic achievements in the discipline in which the doctoral study programme is delivered.</p>	<p><b>High level of quality</b> This programme continue the long tradition of high quality science in Oceanology, and there is considerable international recognition for their researchers.</p>
<p>1.2. The number and workload of teachers involved in the study programme ensure quality doctoral education.</p>	<p><b>High level of quality</b> According to current MOZVAG analytics, the Oceanology programme does not fulfil the condition of delivering at least 50% of the programme (calculated in norm-hours) with the staff employed at the HEI (29%). Nevertheless, the amount and workload of teaching is adequate for such an interdisciplinary programme. Together with the collaborating institutes (that originally were accredited to deliver the program under previous legal provisions), the programme is fully covered (only two external teachers).</p>
<p>1.3. The teachers are highly qualified researchers who actively engage with the topics they teach, providing a quality doctoral programme.</p>	<p><b>High level of quality</b> The teachers generally have good h-indices (Table 1: Teaching staff) and a good number of quality outputs relevant to the field in which they teach. The teachers and supervisors of the Programme are participants or leaders in 30 current projects, most of which are funded by the Croatian Science Foundation and several international projects.</p>
<p>1.4. The number of supervisors and their qualifications provide for quality in producing the doctoral thesis.</p>	<p><b>Improvements are necessary</b> The ratio of supervisors and students is adequate. Supervisors are generally productive in terms of research outputs and show good h-indices. They are well qualified to be supervisors. However, supervisors are not trained for their role as supervisors and it is recommended that the HEI develop and implement a scheme for training supervisors in doctoral supervision.</p>
<p>1.5. The HEI has developed methods of assessing the qualifications and competencies of teachers and supervisors.</p>	<p><b>Improvements are necessary</b> Mechanisms for assessing the qualifications and competencies of teachers and supervisors come under the auspices of the Vice-Dean for Research and Doctoral Studies. In practice, the Council of the Programme - which has representation from the partner institutes - makes decisions to approve individual doctoral candidates, partly</p>

	<p>on the credentials of the proposed supervisory team. Thus supervisors are checked as part of the approval process for each thesis topic.</p> <p>However, the HEI presented no evidence concerning the credentials of teachers, many of whom are employed by the partner institutes, and thus operate outside the University's appointment and appraisal systems, which might otherwise check credentials.</p> <p>The HEI should implement a scheme to ensure that the qualifications and competencies of teachers meet with the general requirements for teaching staff.</p>
1.6. The HEI has access to high-quality resources for research, as required by the programme discipline.	<p><b>Improvements are necessary</b></p> <p>Students that the Panel met reported that, in general, they have access to all the scientific equipment and facilities they need to complete their studies. However, they reported difficulty accessing all the research papers they needed, even though many had dual membership of the Faculty library and the library at their institute. Access to full range of bibliographic material should be ensured.</p>
<b>2. INTERNAL QUALITY ASSURANCE OF THE PROGRAMME</b>	
2.1. The HEI has established and accepted effective procedures for proposing, approving and delivering doctoral education. The procedures include identification of scientific/ artistic, cultural, social and economic needs.	<p><b>High level of quality</b></p> <p>The programme is a fundamental part of Oceanology research in Croatia and is aligned with the strategic programme of the HEI.</p>
2.2. The programme is aligned with the HEI research mission and vision, i.e. research strategy.	<p><b>High level of quality</b></p> <p>The programme is aligned with the strategic programme of the HEI (Faculty of Science - Strategic Programme of Scientific Research 2018 – 2023).</p>
2.3. The HEI systematically monitors the success of the programmes through periodic reviews, and implements improvements.	<p><b>Improvements are necessary</b></p> <p>There was a review in 2013 done by the University of Zagreb Board of Doctoral Programmes, but the outcome was not communicated. However, the Panel recommends that the HEI/Department take charge and continues with these regular reviews of the programme, communicating the outcomes effectively to all stakeholders and taking measures to improve based on the findings.</p>
2.4. HEI continuously monitors supervisors' performance and has mechanisms for evaluating	<p><b>High level of quality</b></p> <p>The Programme has good balance of annual report of students and supervisor's interaction, and frequent contact</p>

supervisors, and, if necessary, changing them and mediating between the supervisors and the candidates.	between PhD students, teachers and supervisors creates a good scientific environment.
2.5. HEI assures academic integrity and freedom.	<b>Improvements are necessary</b> The existence of the compulsory course <i>Science in Society and Ethics</i> and the student' declaration of originality is appreciated. Nevertheless, there are no procedures to check this.
2.6. The process of developing and defending the thesis proposal is transparent and objective, and includes a public presentation.	<b>Improvements are necessary</b> The process of defending the thesis is transparent and includes a public presentation. However, the requirement for externality is not clear and neither is the requirement for guidelines.
2.7. Thesis assessment results from a scientifically sound assessment of an independent committee.	<b>High level of quality</b> The Programme would benefit from the external member of the committee being external to the University and the relevant partner institutions.
2.8. The HEI publishes all necessary information on the study programme, admissions, delivery and conditions for progression and completion, in accessible outlets and media.	<b>Improvements are necessary</b> There was information, but the Panel could not access it in completeness or pertinence because of its lack of accessibility; it was in Croatian. All information should be translated to English.
2.9. Funds collected for the needs of doctoral education are distributed transparently and in a way that ensures sustainability and further development of doctoral education (ensures that candidates' research is carried out and supported, so that doctoral education can be completed successfully).	<b>High level of quality</b> Funds collected are used to support doctoral candidates during the programme.
2.10. Tuition fees are determined on the basis of transparent criteria (and real costs of studying).	<b>High level of quality</b> Procedures are well established for fiscal probity and are made plain to candidates.
<b>3. SUPPORT TO DOCTORAL CANDIDATES AND THEIR PROGRESSION</b>	
3.1. The HEI establishes admission quotas with respect to its teaching and supervision capacities.	<b>High level of quality</b> The Doctoral Programme in Oceanology currently has 9 supervisors appointed for 8 students, and 18 advisors for 18 students, and on the annual basis 3-6 students are admitted

	to the Programme. The student/teacher or student/supervisor ratio is quite satisfactory.
3.2. The HEI establishes admission quotas on the basis of scientific/ artistic, cultural, social, economic and other needs.	<b>High level of quality</b> Admission quota (up to 10 doctoral candidates per year) is based on the strategic needs in Oceanology. Only one person from 41 graduate students is currently unemployed.
3.3. The HEI establishes the admission quotas taking into account the funding available to the candidates, that is, on the basis of the absorption potentials of research projects or other sources of funding.	<b>High level of quality</b> Most candidates are fully funded through research projects. However, the HEI might want to consider ways of ensuring that self-funded candidates have parity of opportunities to develop themselves as full candidates.
3.4. The HEI should pay attention to the number of candidates admitted as to provide each with an advisor (a potential supervisor). From the point of admission to the end of doctoral education, efforts are invested so that each candidate has a sustainable research plan and is able to complete doctoral research successfully.	<b>High level of quality</b> Every doctoral candidate has an appointed advisor/supervisor and a research plan upon admission.
3.5. The HEI ensures that interested, talented and highly motivated candidates are recruited internationally.	<b>Improvements are necessary</b> Although we recognized the difficulty of attracting international candidates, the program could do more to attract international applicants.
3.6. The selection process is public and based on choosing the best applicants.	<b>High level of quality</b> The selection process is public and there are ways to choose suitable candidates. Upon the admission to the Programme, formal as well as informal criteria (doctoral research proposal draft, scientific publications or congress presentations) are taken into account through the interview with the applicant. During the interview, if the applicants does not have well defined topic and/or potential supervisor, he/she is advised to withdraw until he/she reaches a higher level of readiness.
3.7. The HEI ensures that the selection procedure is transparent and in line with published criteria, and that there is a transparent complaints procedure.	<b>High level of quality</b> The selection process is transparent and aligned with the criteria. Call for applications is published in the daily press and on the Faculty website, and includes clearly defined formal criteria. The compulsory part of the admission procedure is the interview with the applicant. Although the applicants are entitled to complain on the procedure, there have been no such cases.

<p>3.8. There is a possibility to recognize applicants' and candidates' prior learning.</p>	<p><b>High level of quality</b> The Council of the Doctoral Programme can award ECTS credits for applicant's prior activities that may contribute to obtaining competences relevant to the Programme. We have been personally informed of the possibility of recognizing candidate's prior learning.</p>
<p>3.9. Candidates' rights and obligations are defined in relevant HEI regulations and a contract on studying that provides for a high level of supervisory and institutional support to the candidates.</p>	<p><b>Improvements are necessary</b> Although rights of the students are officially defined in the Ordinance on Doctoral Studies, rights of the students should be better communicated to them. It would be especially good to have constant feedback about the needs of the students for their progression.</p>
<p>3.10. There are institutional support mechanisms for candidates' successful progression.</p>	<p><b>High level of quality</b> Students receive institutional support for their doctoral progression. Candidates have the possibility to develop a successful progression through funded conferences and research stays. This helps them to communicate with colleagues and other stakeholders in order to develop their projects.</p>
<p><b>4. PROGRAMME AND OUTCOMES</b></p>	
<p>4.1. The content and quality of the doctoral programme are aligned with internationally recognized standards.</p>	<p><b>Improvements are necessary</b> The programme in terms of its thesis outputs showed good alignment with international standards, but the Panel could detect no convincing evidence that the HEI is taking any formal steps to position its programme in line with internationally recognised standards. Any alignment comes through informal and sometimes erroneous routes.</p>
<p>4.2. Programme learning outcomes, as well as the learning outcomes of modules and subject units, are aligned with the level 8.2 of the CroQF. They clearly describe the competencies the candidates will develop during the doctoral programme, including the ethical requirements of doing research.</p>	<p><b>High level of quality</b> The learning outcomes are well set out, but the inclusion of psychomotor skills is without justification, and the HEI may want to revise its learning outcomes to ensure they reflect programme content and assessment. Otherwise, there is a strong mapping of learning outcomes to various elements of the programme, as well as evident alignment with CroQF 8.2. Ethics considerations are particularly covered.</p>
<p>4.3. Programme learning outcomes are logically and clearly connected with teaching contents, as well as the contents included in supervision and research.</p>	<p><b>Improvements are necessary</b> In general, there is a disconnect between learning outcomes and teaching content. The staff was unsure of both the nature and use of LOs. Thus LOs are likely to be an artificial construct for this programme. However, what is delivered shows a strong relationship with the needs of students and employers. The HEI should ensure that the staff makes use</p>

	of the published learning outcomes in both teaching and assessment.
4.4. The doctoral programme ensures the achievement of learning outcomes and competencies aligned with the level 8.2 of the CroQF.	<p><b>High level of quality</b></p> <p>The theses viewed by the Panel were clearly at doctoral level, showing doctoral level outputs as defined in the CroQF, and met some of the more generic learning outcomes set by the HEI. To ensure a stronger and more realistic match between the assessment artefact and the Los, the HEI may wish to revise the LOs to reduce their number and specificity.</p>
4.5. Teaching methods (and ECTS, if applicable) are appropriate for level 8.2 of the CroQF and assure achievement of clearly defined learning outcomes.	<p><b>Improvements are necessary</b></p> <p>The structure is good – there’s a lot of choices and courses can be delivered to very small groups if necessary.</p> <p><i>Science in Society and Ethics</i> is a compulsory course.</p> <p>The research seminars are particularly important and are bespoke. ECTS allocation for other activities is appropriate.</p> <p>However, teaching methods are only assessed by examining student success rates; the HEI should implement a scheme for maintaining oversight of the effectiveness of teaching, including assessment of the quality of teaching methods deployed.</p> <p>Furthermore, the Panel was not convinced that the material in the taught courses was at CroQF 8.2. Though students and alumni were appreciative of the teaching deployed, they could not explain how the courses were more advanced than Masters level and teaching staff were unable to indicate characteristics of teaching at doctoral level.</p>
4.6. The programme enables acquisition of general (transferable) skills.	<p><b>Improvements are necessary</b></p> <p>Although the SER claimed that general (transferable) skills were acquired during the programme, it supplied little evidence of this. The Panel heard that while research ethics is mandatory, other general skills courses were few, though did include paper and proposal writing. The Panel considers the paucity of instruction aimed at the acquisition of general (transferable) skills as a weakness, and the HEI should review its position in this respect with a view to greatly expanding the mandatory provision, for example in relation to statistical techniques.</p>



<p>4.7. Teaching content is adapted to the needs of current and future research and candidates' training (individual course plans, generic skills etc.).</p>	<p><b>High level of quality</b>  This is a strength of the programme. Through the large number of elective courses students are able to select taught components that best match and prepare them well for their ultimate thesis topic. Furthermore, alumni reported that the courses had facilitated a broadening in their understanding of topics and this had prepared them for their careers.</p> <p>Staff at partner institutes reported that they can, and have, proposed new courses that were ultimately adopted, thus the scheme is sensitive to the needs of the institutes.</p>
<p>4.8. The programme ensures quality through international connections and teacher and candidate mobility.</p>	<p><b>High level of quality</b>  Mobility for staff and students is part of Special Objective 2.5 of the HEI Development Strategy and the HEI is aware of mobility opportunities.</p> <p>There are agreements with many EU and extra-EU universities, and some of these have resulted in mobility. Of 23 successful defences, 5 had foreign co-supervisors and these were in English.</p> <p>The Panel concluded that the HEI was aware of its limitations and shortcomings in relation to mobility of both staff and students, but was nevertheless positioning itself as best as it could. This has resulted in some students travelling abroad for part of their studies, and some having supervisors at overseas institutions.</p>

**\* NOTE: RECOMMENDATIONS OF THE EXPERT PANEL TO THE ASHE'S ACCREDITATION COUNCIL AND QUALITY LABEL**

The role of the Expert Panel in the re-accreditation of doctoral study programmes is manifold. The Expert Panel or part of the Expert Panel visiting a higher education institution drafts a report on the basis of a self-evaluation report, the accompanying relevant documentation, and a site visit to HEI. The draft report is adopted by all members of the Cluster Expert Panel, while the president of the Cluster Expert Panel is responsible for coordinating the assessment levels.

The report contains an assessment on whether a doctoral study programme delivered at a higher education institution complies with the prescribed laws and by-laws, as well as any additional/recommended requirements defined by the Agency's Accreditation Council, and whether a higher education institution can obtain a positive, i.e. satisfactory quality assessment according to the criteria set out in this document. Moreover, the Expert Panel must make recommendations for quality improvement.

Based on the assessment of all these elements, the Expert Panel may propose to the Accreditation Council of the Agency to issue either a confirmation on compliance, a letter of expectation for the period

up to three (3) years in which period the higher education institution should eliminate the identified deficiencies, or to deny the license.

If the Expert Panel has assessed that a doctoral study programme delivered by a higher education institution does not meet legal and other requirements or that the quality of a study programme is not ensured (i.e. that HEI does not meet additional requirements or recommendations made by the Accreditation Council, or has a very poor quality assessment), they should propose to the Accreditation Council to deny the license.

If the Expert Panel considers that the relevant laws and bylaws have been met by a higher education institution, but that certain elements mentioned above do not meet the quality requirements, while they consider that the identified shortcomings can be corrected within a time frame of three years, they should issue a letter of expectation.

If the Expert Panel considers that all legal and additional/recommended requirements have been met and the quality assessment is satisfactory, i.e. that a study programme fulfils the learning outcomes appropriately defined for that level and scientific area, they may propose the issuance of a certificate and have a HEI commit to quality improvement and reporting to the Agency during the follow-up period.

Finally, if the Expert Panel has, in accordance with the criteria mentioned above, proposed issuing the certificate of compliance and assessed that, in addition to meeting the minimum quality requirements – i.e. the qualification framework level - for a study programme, the programme should be identified as a doctoral programme of a 'high level of quality', the Expert Panel may propose to the Agency's Accreditation Council that such a doctoral study programme be awarded the 'high quality label'. Thus the Agency, with the consent of the Accreditation Council, grants a higher education institution the right to use the label for their academic and promotional purposes.

The 'high quality label' cannot be proposed or awarded to a programme or a higher education institution that does not comply with the requirements laid down by the laws and bylaws mentioned in this document, and any additional requirements recommended by the Accreditation Council. Moreover, the quality assessment awarded to a study programme should reflect a high level of quality inasmuch that at least half of the sub-criteria in each of the quality assessment criteria are assessed as being of high quality. The Accreditation Council of the Agency issues a final opinion on the label awarded. The content and form of the quality labels shall be prescribed by the Agency in a relevant general act.

The Accreditation Council of the Agency discusses the final report with all recommendations and suggestions, and issues their opinion on the report. Based on a prior opinion of the Accreditation Council, the Agency issues an Accreditation Recommendation to the minister responsible for science and higher education, and upon receipt of the minister's final decision on the outcome of the procedure, awards the 'high quality label' to a higher education institution.