REPORT
of the Expert Panel
on the

RE-ACCREDITATION OF
University of Rijeka−Department of Informatics

Date of the site visit:
15th April 2015

July 2015

Contents

INTRODUCTION

This report on the re-accreditation of the Department of Informatics of the University of Rijeka was written by the Expert Panel appointed by the Agency for Science and Higher Education, on the basis of the self-evaluation of the institution and supporting documentation and a visit to the institution.

Re-accreditation procedure performed by the Agency for Science and Higher Education (ASHE), a public body listed in EQAR (European Quality Assurance Register for Higher Education) and ENQA (European Association for Quality Assurance in Higher Education) full member, is obligatory once in five years for all higher education institutions working in the Republic of Croatia, in line with the Act on Quality Assurance in Higher Education.

The Expert Panel is appointed by the ASHE Accreditation Council, an independent expert body, to perform an independent peer-review-based evaluation of the institution and their study programs.

The report contains:
- a brief analysis of the institutional advantages and disadvantages,
- a list of good practices found at the institution,
- recommendations for institutional improvement and measures to be implemented in the following period (and checked within a follow-up procedure), and
- detailed analysis of the compliance to the Standards and Criteria for Re-Accreditation.

The members of the Expert Panel were:
- Professor Donald Sannella, *School of Informatics, University of Edinburgh* – panel chair
- Professor Hugh J. Byrne, *FOCAS Institute, Dublin Institute of Technology*
- Professor Madjid Merabti, *School of Computing & Mathematical Sciences, Liverpool John Moores University*
- Professor Luka Grubišić, *Department of Mathematics, Faculty of Science, University of Zagreb*
- Valentina Gačić, *Department of Physics, Faculty of Science, University of Zagreb* - student

In the analysis of the documentation, site visit and writing of the report the Panel was supported by the ASHE staff:
- Marina Cvitanušić Brečić, coordinator, ASHE
- Neven Kovačić, support to the coordinator, ASHE
- Lida Lamza, translator, ASHE

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

- The Management at the University level;
- The Management at the Department level;
- The Working Group that compiled the Self-Evaluation;
- Teaching assistants and junior researchers;
- Teaching staff (full-time employed);
- The students (self-selected set of students present at the interview);
- The person(s) in charge of student and teaching issues;
- Administrative staff.

The Expert Panel also had a tour of the library, IT rooms, student register desk, and the undergraduate teaching laboratories and classrooms at the Department of Informatics of the University of Rijeka, where they held brief question and answer sessions with the students and staff who were present.

Upon completion of re-accreditation procedure, the Accreditation Council renders its opinion on the basis of the Re-accreditation Report, an Assessment of Quality of the higher education institution and the Report of Fulfilment of Quantitative Criteria which is acquired by the Agency's information system.

Once the Accreditation Council renders its opinion, the Agency issues an Accreditation Recommendation by which the Agency recommends to the Minister of Science, Education and Sports to:

1. **issue a confirmation** to the higher education institution, which confirms that the higher education institution meets the requirements for performing the higher education activities or parts of activities, in case the Accreditation Recommendation is positive,

2. **deny a license** for performing the higher education activities or parts of activities to the higher education institution, in case the Accreditation Recommendation is negative, or

3. **issue a letter of recommendation** for the period up to three (3) years in which period the higher education institution should remove its deficiencies. For the higher education institution the letter of recommendation may include the suspension of student enrolment for the defined period.

The Accreditation Recommendation also includes an Assessment of Quality of the higher education institution as well as recommendations for quality development
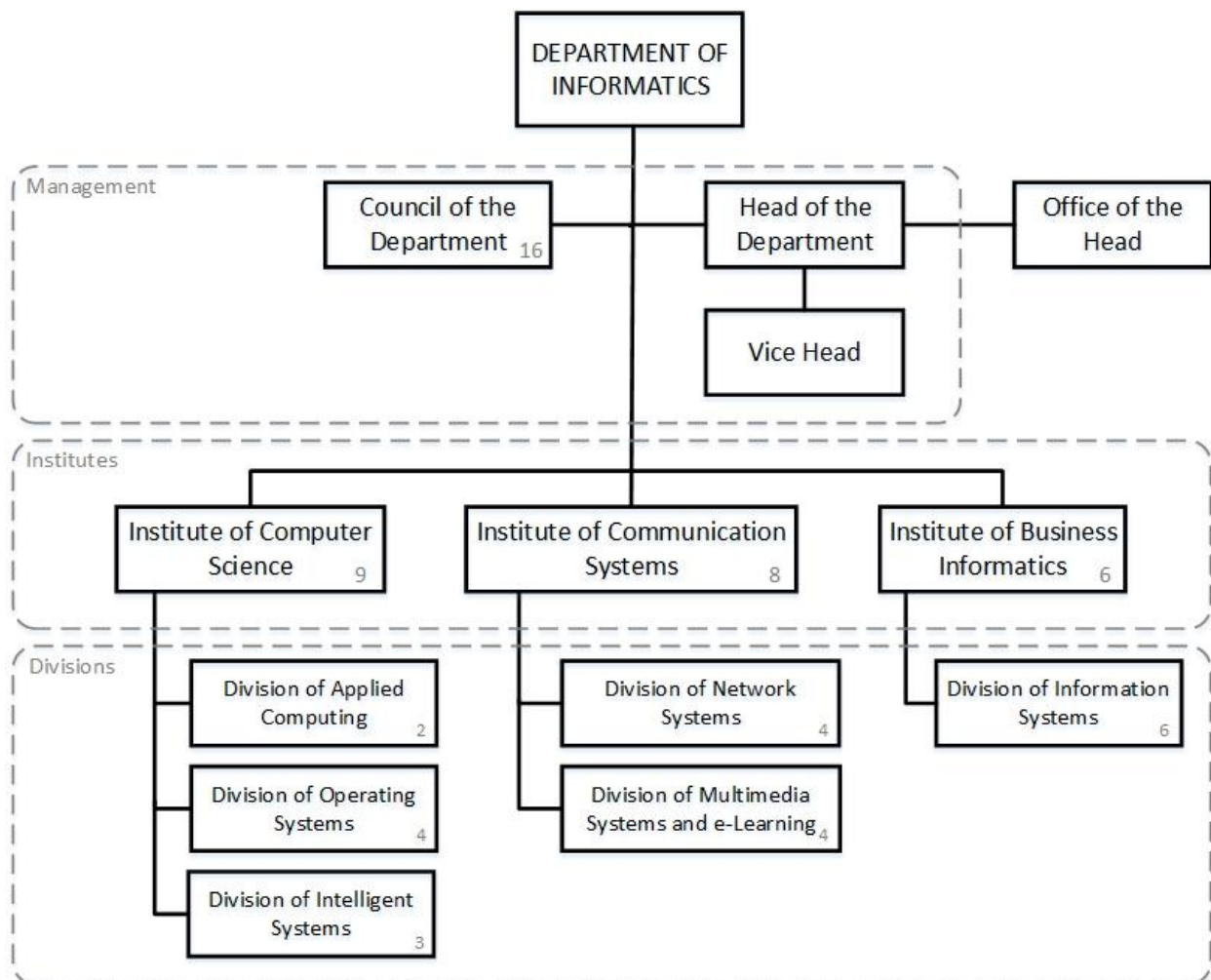
SHORT DESCRIPTION OF THE EVALUATED INSTITUTION

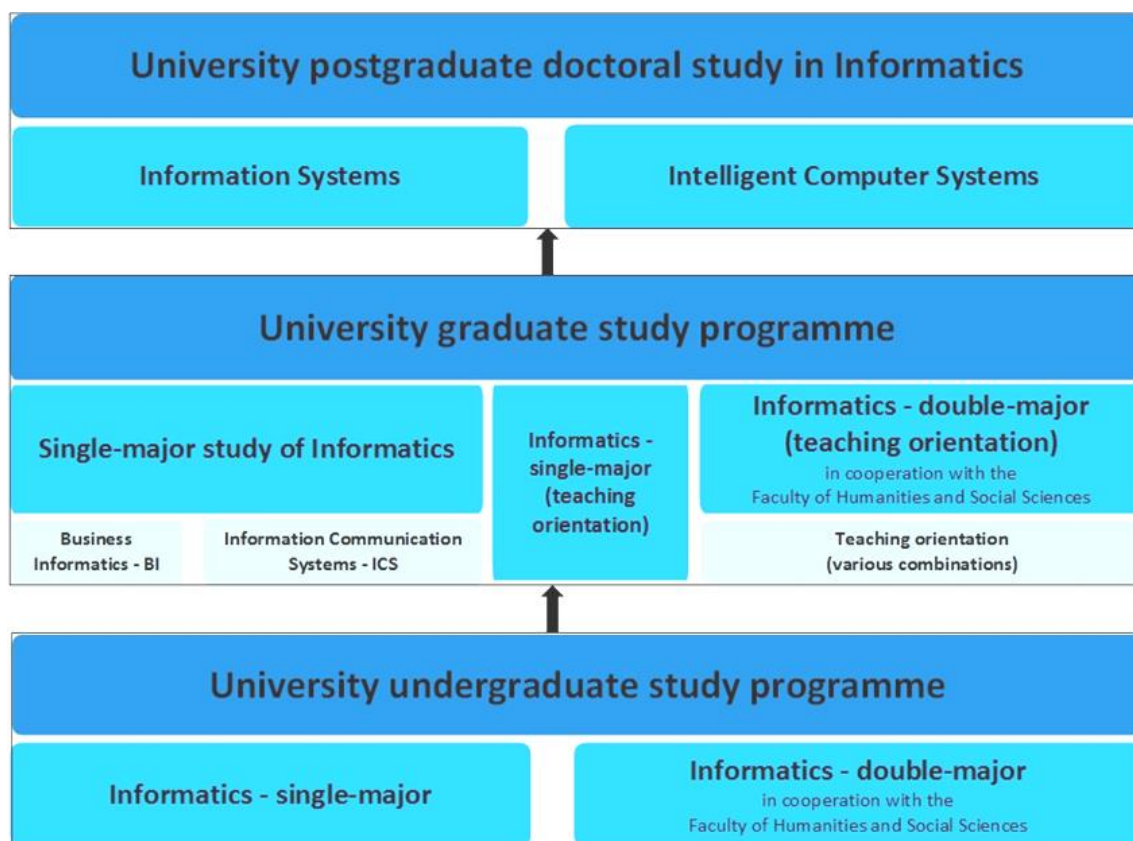NAME OF HIGHER EDUCATION INSTITUTION: University of Rijeka – Department of Informatics

ADDRESS: Radmile Matejčić 2, 51000 Rijeka

NAME OF THE HEAD OF HIGHER EDUCATION INSTITUTION/DEPARTMENT: Patrizia Poščić, PhD, Assistant Professor

ORGANISATIONAL STRUCTURE:

LIST OF STUDY PROGRAMMES (study programmes along the vertical line, Self-evaluation, p 27):

NUMBER OF STUDENTS:

Study programme	Full-time students	Part-time students	Senior undergraduate and graduate students ('absolvents')*
Undergraduate single-major study programme in Informatics	206	1	2
Undergraduate double-major study programme in Informatics	59		1
Graduate study of Informatics	59		12
Teaching orientation graduate study programme in Informatics	16		2
Graduate double-major study programme in Informatics	24		5
Postgraduate doctoral study of Informatics	31		0
Total	395	1	22

* These are the students who have passed all their exams and only need to submit their Bachelor's or Master's thesis

NUMBER OF TEACHERS: Full-time – 10(source Self-evaluation, Table 4.1.)

NUMBER OF SCIENTISTS (doctors of science, elected to grades, full-time)

- Doctors of science (15)
- Master of Science (1)

Source: Self-evaluation, Table 4.3. List of teachers

TOTAL BUDGET in 2013 (in kunas):

TOTAL INCOME (A)	5,680,315.52
TOTAL EXPENSES (B)	5,407,261.89
Balance from previous year (C)	1,931,643.58
TOTAL BALANCE (A-B+C)	1,658,589.95

MSES FUNDING in 2013 (percentage):   89% (5,051,567.95 kn)

OWN FUNDING in 2013 (percentage): 5% (283,315.59 kn)

SHORT DESCRIPTION OF HIGHER EDUCATION INSTITUTION:

The Department of Informatics of the University of Rijeka is relatively recently established (2008), although it derives from the previous Section of Informatics of the Faculty of Humanities and Social Sciences. It relocated into the new building of the University Departments at the University Campus in September 2012. This solved long-time problems with space, especially with the insufficient number of computer classrooms for students and offices for the teachers, and it also created the conditions for quality teaching and research work.

Today the Department of Informatics organizes and runs university undergraduate and graduate study programmes, as well as postgraduate doctoral study programme. It does not offer integrated or professional study programmes.
In addition, the Department delivers the following Lifelong Learning Programmes:
- Differential Programme in Informatics, established 2010/2011,
- Mobile Application Development, approved for start in 2015/2016.

The Department has 24 employees, and at the beginning of the academic year 2013/2014, the total number of students enrolled in all study programmes was 395.

CONCLUSIONS OF THE EXPERT PANEL

Despite its small size, the Department of Informatics covers a broad portion of its subject area. The self-evaluation report was extremely well formulated and presented, and the site visit provided an excellent insight into the operations of the Department at all levels.

ADVANTAGES OF THE INSTITUTION

The Department of Informatics, University of Rijeka was founded in April 2008. It relocated into the new building of the University Departments at the Campus in September 2012. As such it has had the advantage of:

1. Autonomy to design and initiate new and novel course provision at undergraduate, graduate and postgraduate level;

2. State of the art facilities for teaching provision;

3. A track record of high level research output;

4. The Department is sole provider for the regional catchment area;

5. Entry into the EU has provided excellent guidance on international benchmarks for quality assurance in education provision and other operational procedures, and the Department has been flexible in adopting these, aided by its size and youth;

6. Informatics is currently an attractive discipline and student recruitment is high.

DISADVANTAGES OF THE INSTITUTION

Given the early stage of development of the Department, it is difficult to establish a status quo for financial planning, staffing, student numbers, etc. particularly in recent times of economic recession. The self evaluation is overall positive, but a number of recurring themes relate to financial issues and consequent impact on budget, staffing etc.

1. The size of the Department is limited by its relatively small catchment area.

2. Informatics is a broad subject area and it is intrinsically difficult to cover the full, increasingly interdisciplinary scope.

FEATURES OF GOOD PRACTICE

The self evaluation describes many excellent examples of Good Practice under all headings, some of which are University based and some of which are specific to the Department. These include:

1. The comprehensive scope of the undergraduate, graduate and postgraduate course provision, with high levels of demand from potential students;

2. The targeting of teaching as an employment destination, with the placement of teaching strand students in schools, and the placement of business strand students in enterprises;

3. Provision of lifelong learning programmes: the "Differential Programme in Informatics" and "Mobile Application Development" (starting 2015/2016);

4. Excellent encouragement and support of student activity, including active involvement of students in research, as well as support for student startups with a very impressive level of student startup activity.

5. Participation in "The project of increasing student success in science, technology, engineering and mathematics, in information and communication field and in interdisciplinary study programmes related to these areas";

6. Good staff/student engagement is clearly evident, with bright, motivated and enthusiastic students, and engagement of students in Departmental committees is excellent;

7. The use of e-learning techniques and the engagement of staff in pedagogical research;

8. The creation of the PhD study programme, supporting the career development of staff in local industry;

9. High level of engagement of alumni and local business community in course design, including the round table "Educating Informatics Experts for Future Needs of the Croatian Economy";

10. Analysis of first destination statistics, tracking employability of students in close cooperation with employers;

11. There is clearly an excellent collegial spirit among the motivated and dedicated members of staff, despite the high workload, with flexible and fair distribution of work, and a genuine impression of commonality of goals across all levels of staff;

12. Support for technology transfer and engagement with the local community;

13. The engagement of staff in collaborative scientific research, internally and internationally, including engagement with a range of EU programmes;

14. Staff recruitment procedures, with an obligatory inaugural lecture in front of students and the committee that evaluates them;

15. A good level of international mobility at all levels, including staff and (through the Erasmus programme) students.

RECOMMENDATIONS FOR IMPROVEMENT

1. Management of the Higher Education Institution and Quality Assurance

▪ The management could consider some form of annual Professional Development Plan, to be elaborated between the management and individual staff, in the context of the overall Departmental and University strategy.

2. Study Programmes

- Although the Department has implemented appropriate QA procedures with engagement and feedback from students, the impact on development of programmes should in future be more rigorously documented. This includes, for example, feedback from students.
- Attention should be paid to harmonising the format of learning outcomes, which are at times phrased in terms of thematic specifics and otherwise in terms of more conceptual skills. Some courses appear to be missing a description of learning outcomes altogether. The English and Croatian versions of the curriculum should be checked for consistency.
- A check on the alignment of assessment with the descriptions of learning outcomes will be required, once learning outcomes are revised.
- There is some indication of a need for modernisation of the curriculum to reflect changes in technology. The planned curriculum review is timely and appropriate and should go ahead.
- The Department should seek more opportunities to provide students with placements in companies and training internships, perhaps taking advantage of contacts through PhD students with local companies.

3. Students

- For recruitment, the Department is recommended to advertise study programmes in terms of job opportunities and career paths. Experiences of alumni are important for recruitment, and some alumni testimonials could be included on the Department's website.

4. Teachers

- PhD mentoring should be taken into account in measuring staff workload.

5. Scientific and Professional Activity

- PhD projects could be developed with local companies as partners, rather than only individuals from those companies, in order to leverage the PhD programme to further promote engagement with local industry.

6. International Cooperation and Mobility

- Members of staff should seek opportunities to engage as EU evaluators in order to gain insight into the way that proposals are evaluated.
- The Department might consider joining Informatics Europe as a way of widening its network of relationships within Europe.

7. Resources, Administration, Space, Equipment and Finance

- Many of the factors governing resources are hindered by current national policies.

DETAILED ANALYSIS OF INSTITUTIONAL COMPLIANCE TO THE STANDARDS AND CRITERIA FOR RE-ACCREDITATION

In general, the self-evaluation report of the Departmental Team is well presented and addresses in some manner all of the re-accreditation criteria.

In terms of classification under the designated assessment criteria, the degree of implementation has been influenced by national restrictions, e.g. staff recruitment and progression, by the spread of expertise of the Department's staff, and by other circumstances beyond the Department's control.

1. Institutional management and quality assurance

1.1. The Department has a strategic plan that takes all stakeholders' views into account in its formulation and implementation.

1.2. The organisational structure of the Department is well formulated and formalised.

1.3. (Not applicable)

1.4. The study programmes are in line with the University and Departmental mission.

1.5. The full range of stakeholders is involved in quality procedures. The industry contacts could be used as an opportunity to further develop the PhD programme.

1.6. There is a need for better coordination between Departments with respect to quality and feedback mechanisms.

1.7. The Department has appropriate and functional mechanisms for monitoring of research quality and plans for improvement that are aligned with these mechanisms.

1.8. The Department is governed by the University's principles and processes of ethical practice.

2. Study programmes

2.1. Although the Department has implemented appropriate QA procedures with engagement and feedback from students, the impact on development of programmes should be more rigorously documented. There is some indication of a need for modernisation of the curriculum to reflect changes in technology.

2.2. Informatics has a central place in modern society and enrolment quotas are fully justified.

2.3. Demand for most of the Department's teaching programmes is robust and student numbers stretch the available teaching resources, but the enrolment quotas are in line with the Department's resources.

2.4. The description of learning outcomes is not well harmonised across all study programmes and courses, with some courses missing a description of learning outcomes altogether. Checking sample courses suggested inconsistencies between the English and Croatian versions of the curriculum.

2.5. The current state of the description of learning outcomes (see 2.4) meant that it was unclear how assessment currently aligns with learning outcomes. A check on the alignment of assessment with the descriptions of learning outcomes will be required, once learning outcomes are revised.

2.6. Allocation of ECTs are appropriate and reflect student workload.

2.7. The content and quality of study programmes are mostly in line with international standards. The planned curriculum review is timely and appropriate and should go ahead.

2.8. The teaching methods employed are appropriate for the subject, including laboratory and classroom based training, and encourage student self learning through assignments and e-learning.

2.9. Subscriptions to e-journals have been cut back on a national level. This will have a negative impact on the higher level programmes and research activities, and doctoral training. Access to textbooks is limited.

2.10. Students have opportunities to reinforce and apply their learning in the context of practical applications, but the Department should seek more opportunities to provide students with placements in companies and training internships.

3. Students

3.1. The competencies of applicants on admission are mostly aligned with the demands of the teaching programmes and the demands and expectations of their future careers, and analyses of the admission criteria taking account of students' academic success are performed. The Department is considering increasing its admission requirements, and in view of the robust demand for most of its study programmes, this is worthy of further consideration and perhaps experimentation.

3.2. Extracurricular activities on the new campus are in general being developed, and should be supported by new sports and recreational facilities.

3.3. As is appropriate in a small department, mentorship is largely informal and appears to work well. Support for entrepreneurship is very good with a high level of interest and engagement from students.

3.4. Knowledge assessment procedures and methods are documented and are appropriate.

3.5. The Department maintains contacts with its former students and collects data on their employment following graduation.

3.6. The Department uses a range of methods to inform the public about its study programmes and employment opportunities available to graduates, including web-based information, Open Days, group competitions and presentations in schools. The English and Croatian versions of the curriculum on the web appear to be inconsistent. Some students appear not to have been informed about the availability of the pre-study orientation course before arrival.

3.7. Students are engaged in the management structures of the Department and are given opportunities to influence its decision making processes.

3.8. Feedback on measures that have been taken is provided through the organisational structures of the Department.

4. Teachers

4.1. Development of Departmental activities has been hampered by the state embargo on recruitment and progression. Centrally-allocated teaching resources are inadequate. However, the Department has been able to use its own resources to fill the gap.

4.2. As 4.1.

4.3. The staff-student ratio is high but satisfactory. PhD mentoring should be taken into account in measuring staff workload.

4.4. In general, the Department encourages staff development to advance the University and Departmental mission, and members of teaching staff take advantage of these opportunities.

4.5. In general, the feedback from the staff across the spectrum of the department was that the workload was high, but distribution was fair. Some mentors are not regularly meeting students they are mentoring, and the way that the workload is distributed does not seem to take mentoring into account.

4.6. There is no significant impact of external commitments on teaching and research activities. Nevertheless, there are documented procedures for monitoring this.

5. Scientific and professional activity

5.1. The Department has a strategic research agenda which is in harmony with the University's strategic plan, with performance monitoring through numbers of publications, number and value of research grants, etc.

5.2. National and international collaboration is well developed. There may be more opportunities for local collaboration, for example with the area of Materials in Physics.

5.3. The Department has achieved an adequate level of research quality with a good fit to its strategic research agenda, and this should improve further through exploitation of its existing collaborative links.

5.4. See 5.3. The research publication profile of the Department is good. To encourage and reward scientific productivity, the Department plans to develop a system of rewards for the best publications.

5.5. Career Progression is implemented on a national level and thus is not relevant on a Departmental scale. Recruitment and progression in academic positions is the responsibility of the Department, and is based on excellence and scientific productivity.

5.6. As 5.4.

5.7. The Department has a good assortment of domestic and international projects which are in line with its strategic agenda, with good plans for more in the future.

5.8. The Department has a good level of technology transfer, with research including practical projects alongside production of publications. It provides a very good level of support to student startups and there is an impressive level of activity in this area.

5.9. The Department supports staff in their engagement in professional activities. Collaboration with NVIDIA provides access to state-of-the-art equipment. The Department's reputation locally is boosted through provision of PhD education to staff in local companies.

5.10. PhD students could be integrated more into the Department's research activities. As the PhD programme was established in 2012/2013, statistics on completion rates are not yet available.

6. International cooperation and mobility

6.1. The Department has in place several Erasmus agreements and encourages mobility of students. The students were well informed of the opportunities.

6.2. Erasmus opportunities are available to students, with so far one incoming student and a modest number of outgoing students. The number of Erasmus partners is adequate and the Department supports students in arranging exchanges with Universities with which no bilateral Erasmus agreement yet exists.

6.3. There are well-established international relationships which facilitate mobility of staff. There appears to be no analysis of the effect of these exchanges.

6.4. Individual members of staff of the Department are members of relevant international scientific organisations. The Department might consider joining Informatics Europe as a way of widening its network of relationships within Europe.

6.5. The Department has demonstrated that it can accommodate students from abroad by having already hosted one incoming student. More could be done to increase the flow of incoming students with targeted publicity etc.

6.6. The Department has modern facilities and an attractive working environment, with the conditions required to attract teachers from abroad. So far no teachers from further abroad than Slovenia have been recruited.

6.7. The Department has established interinstitutional relationships including an international Erasmus student exchange programme, in which students are encouraged to participate, and COST projects. Through its currently active projects, the Department collaborates with a network of over 100 foreign institutions.

7. Resources: administration, space, equipment and finances

7.1. The Department is well resourced within the new campus. The lack of e-journals is of concern for later stage programmes and research development. The central library facilities are considered adequate, but stocks of books can always be improved.

7.2. The only member of non-teaching staff employed by the Department is the Departmental administrator. One administrator for the Department seems inadequate, and there are difficulties with centrally-provided administrative services. Teaching staff are required to carry out significant administrative as well as technical support duties.

7.3. The Department encourages professional development of non-teaching staff and they have availed themselves of such opportunities.

7.4. Laboratory equipment is of recognised international standard, and usage is supervised and monitored by teaching staff.

7.5. The facilities across the department are of a high quality, in line with international standards, including equipment donated by NVIDIA and Samsung.

7.6. The central library facilities are considered adequate, but stocks of books can always be improved. The lack of e-journals is of concern for later stage programmes and research development.

7.7. The Department is currently in a good position financially as a consequence of the strong demand by students for its teaching programmes, with a recent increase due to the initiation of the PhD study programme.

7.8. Centrally-allocated teaching resources are inadequate, so the Department uses its own resources to fill the gap and to raise the quality of its activities.