University College Dublin

REVIEW GROUP REPORT

Periodic Quality Review

UCD School of Computer Science

April 2016

Accepted by the UCD Governing Authority at its meeting on 20 December 2016

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Key Findings of the Review Group

The Review Group has identified a number of key findings in relation to areas of good practice operating within the School and areas which the Review Group would highlight as requiring future improvement. The main section of this Report sets out all observations, commendations and recommendations of the Review Group in more detail. A composite list of all commendations and recommendations is set out in Appendix 1.

Examples of Good Practice

The Review Group identified a number of commendations, in particular:

- The School atmosphere is collegial and faculty and staff articulate a very positive attitude overall to working there.

- There is an overall sense of commitment to high quality teaching at all levels within the School and students, faculty and staff are aware of this culture of teaching.

- Students see the School as responsive to their suggestions and overall the School is also responsive to the trends emerging from the students' online module feedback.

- Research is well integrated into teaching, not only in the taught postgraduate programmes but also in the undergraduate curriculum, from the first year Computer Science in Practice course to the fourth year projects.

- The School has a rigorous oversight process with on-going programme review and development in place. External examiners are employed for all programmes, as well as special externs for specific areas and research domains. The School effectively engages with its External Examiners to assure the academic standards of its modules and awards.

- Relationships between the School of Computer Science and industry are seen by industry representatives as very positive, open and collaborative.

- Representatives from industry report that UCD Computer Science graduates demonstrate good technical skills and have been trained to engage with industry-type issues. In general, they demonstrate a pro-active approach to their work and the capacity to work in teams.

Prioritised Recommendations for Future Improvement

The full list of recommendations is set out in Appendix 1, however, the Review Group would suggest that the following be prioritised:

- The development of a whole-School community needs to be encouraged and should be underpinned by, for example, all-School work and social events that support staff cohesion. In

particular, new faculty and staff should be given a more robust programme of orientation and integration into the School.

- The School must ensure they provide timely feedback to students. The Review Group recommends having a guideline, such as: "marking and feedback will normally occur within three weeks of assignment submission". Where this guideline cannot be met, students should be given notice of the date when they can expect to receive feedback, which should be timely.

- Consider the "student experience" when using VLEs; the random use of at least 3 VLEs across programmes does not seem to be designed to meet the educational needs of the students, who find it confusing. Where it is necessary to use a different VLE to that used in the University as a whole, it should be underpinned by more robust information for students.

- The School should aim at rising up the rankings as a stretch goal, but not allow it to feel like a failure if it does not happen quickly. Some of the criteria for success of this aspiration will be beyond the School's control (e.g. national/international research priorities may change – data analytics may wane in strategic importance).

- In the past, the School has successfully adopted quite independent, entrepreneurial ways of working – finding unique, local solutions to difficulties and obstacles to progress. The Review Group noted that aspects of this autonomous approach to organisational management are increasingly at odds with the current governance and funding models of the University and recommends that the School work more closely within the regulatory and governance structures of the College of Science and those of the University.

- All PhD students must be fully managed under the University's Doctoral Studies Panel (DSP) system, as a matter of urgency. The School should implement an overall School PhD Coordinator role to ensure that all students are being supported and processed according to the University PhD regulations, e.g. to check that all expected meetings have taken place and are properly documented.

- The feasibility of including a mandatory 6-month internship as part of the School's undergraduate programmes should be explored by the School.

1. Introduction and Overview of UCD School of Computer Science

Introduction

1.1 This Report presents the findings of a quality review of the School of Computer Science, University College Dublin, which was undertaken on 5-10 March 2016. The School response to the Review Group Report is attached as Appendix 2.

The Review Framework

1.2 Irish Universities have collectively agreed a framework for their quality review and quality improvement systems, which is consistent with both the legislative requirements of the Qualifications and Quality Assurance (Education and Training) Act 2012, and international good practice (e.g. Standards and Guidelines for Quality Assurance in the European Higher Education Area, 2014). Quality reviews are carried out in academic, administrative and support service units.

1.3 The purpose of periodic review is to assist the University to assure itself of the quality of each of its constituent units, and to utilise learning from this developmental process in order to effect improvement, including:

- To monitor the quality of the student experience, and of teaching and learning.
- To monitor research activity, including: management of research activity; assessing the research performance with regard to: research productivity, research income, and recruiting and supporting doctoral students.
- To identify, encourage and disseminate good practice, and to identify challenges and how to address these.
- To provide an opportunity for units to test the effectiveness of their systems and procedures for monitoring and enhancing quality and standards.
- To encourage the development and enhancement of these systems, in the context of current and emerging provision.
- To inform the University's strategic planning process.
- The output report provides robust evidence for external accreditation bodies.
- The process provides an external benchmark on practice and curriculum.
- To provide public information on the University's capacity to assure the quality and standards of its awards. The University's implementation of its quality procedures enables it to demonstrate how it discharges its responsibilities for assuring the quality

and standards of its awards, as required by the Universities Act 1775 and the Qualifications and Quality Assurance (Education and Training) Act 2012.

The Review Process

1.4 Typically, the review model comprises four major elements:

- Preparation of a self-assessment report (SAR)
- A visit by a review group (RG) that includes UCD staff and external experts, both national and international. The site visit normally will take place over a two or three-day period
- Preparation of a review group report that is made public
- Agreement of an action plan for improvement (quality improvement plan) based on the RG Report recommendations. The University will also monitor progress against the improvement plan

Full details of the review process can be found on the UCD Quality Office website: www.ucd.ie/quality.

The Review Group

1.5 The composition of the Review Group for the UCD School of Computer Science was as follows:

- Professor Bairbre Redmond, UCD Deputy Registrar for Teaching & Learning (Chair)
- Professor Vera Regan, UCD School of Languages, Cultures & Linguistics (Deputy Chair)
- Professor Perdita Stevens, University of Edinburgh, Scotland
- Professor Ian Watson, University of Auckland, New Zealand

1.6 The Review Group visited the School from 5-10 March 2016 and held meetings with School faculty and staff; undergraduate and postgraduate students; the SAR Co-ordinating Committee; other University faculty and staff, including the College Principal. The site visit schedule is included as Appendix 3.

1.7 In addition to the Self-assessment Report, the Review Group considered other documentation provided by the School and the University during the site visit, including: external examiner reports; University Strategic Plan; School Strategic Plan; School workload model; programme brochures; and the UCD-Fudan BSc Computer Science Programme Quality Review Report.

Preparation of the Self-assessment Report (SAR)

1.8 Following a briefing from the UCD Quality Office, a Self-assessment Report Coordinating Committee (SARCC) was established. The committee met 6 times and communicated regularly by email in the interim. Members of the committee, in consultation with faculty and staff members and student representatives, drafted sections of the Self-assessment Report.

1.9 Committee membership was as follows:

- Prof Padraig Cunningham, Head of School
- Ms Patricia Geoghegan, School Manager
- Mr Gerry Dunnion, Head of Technical Support Team
- Prof Liam Murphy, Chair of Research & Development Committee
- Mr John Dunnion, Director of BSc Computer Science Programme
- Dr Lorraine McGinty, Director of Taught Graduate Studies
- Prof Mark Keane, Chair Computer Science
- Mr Henry McLoughlin, Director of BDIC (Beijing) Programme
- Dr Arthur Cater, Director of Research Postgraduates
- Dr Chris Bleakley, UG Science Promotion / Recruitment Officer
- Mr Rupert Bowen, International Graduate Liaison
- Ms Clare Comerford, Administrative Support
- Mr Oisin Kyne, 3rd Year Rep
- Mr Pravar Agrawal, Taught PG Rep
- Ms Maryanne Doyle, PhD Student Rep

The University

1.10 University College Dublin (UCD) is a large and diverse university whose origins date back to 1643. The University is situated on a large modern campus about 3 km to the south of the centre of Dublin.

1.11 The University Strategic Plan (to 2020) states that the University's mission is: "to contribute to the flourishing of Dublin, Ireland, Europe and the world through the excellence and impact of our research and scholarship, the quality of our graduates and our global engagement; providing a supportive community in which every member of the University is enabled to achieve their full potential".

The University is currently organised into six colleges and 35 schools:

- UCD College of Arts and Humanities
- UCD College of Business
- UCD College of Engineering and Architecture

- UCD College of Health and Agricultural Sciences
- UCD College of Social Sciences and Law
- UCD College of Science

1.12 As one of the largest universities on the island of Ireland, UCD supports a broad, deep and rich academic community in Science, Business, Engineering, Health Sciences, Agriculture, Veterinary Medicine, Arts, Law, Celtic Studies and Social Sciences. There are currently more than 26,000 students on our UCD campus (approximately 16,300 undergraduates, 5,600 postgraduates and 2,200 Occasional and Adult Education students) registered on over 50 University degree programmes, including over 6,300 international students from more than 121 countries. The University also has over 4,300 students studying UCD degree programmes on campuses overseas.

UCD School of Computer Science

1.13 The School of Computer Science is one of seven schools in the UCD College of Science. The School has a total of 45 faculty and staff, comprising 13 non-academic staff (i.e. admin, technical, student advisor (part-time), marketing officer), and 33 faculty, 6 of whom have been employed to lecture mainly on the BSc degree programme in Beijing (BDIC).

1.14 Computer Science faculty, staff and researchers are based in four locations in UCD, the Computer Science Building, UCD Nexus, Science North and Science East. The CeaDAR Centre for Applied Data Analytics is located just off the main UCD campus in Belfield Office Park, as part of NexusUCD, UCD's Industry Partnership Centre.

2. Management and Resources

2.1 The Review Group found that the School operates within an overall shared vision; the School atmosphere is collegial and both faculty and staff articulate a positive attitude to working there. This is also reflected in the students' perception of the School staff: they see faculty and staff as approachable, responsive and helpful. The School has developed strong relationships with local industries and its area of expertise is seen as being of national strategic importance.

2.2 The School organisational structure shows that there are well-integrated sub-systems, supporting the academic and research dimensions of the School:

a) There is a well-developed and valued administrative support structure in the School. The Review Group noted that the current institutional barriers to advancement and promotion for administrative staff creates a real risk that skilled staff may seek posts in other areas of the University as the only route to career progression to the detriment of stability within the School.

b) The contribution and effective use of the relatively small numbers of technical staff is significant.

c) The School Student Support Office appears effective both pedagogically, as a way to amplify the effects of the small technical team, and to give first line computer support. In this office, PhD students are employed to support undergraduate students (UGs) and taught postgraduate students (TPGs) on academic and related technical matters.

2.3 Since the last review in 2007-08, the School experienced challenges during a long period of national economic austerity, which resulted in the loss of a significant number of faculty and staff, and a freeze on promotions and recruitment. With a lessening of some austerity measures, the School has been able to address some of these losses and they have lately been successful in recruiting a number of young enthusiastic faculty members to support expansion in teaching and research. The Review Group noted that these new faculty members feel welcomed into the School and are supported by a mentoring system. However, these faculty members also report the need for a more developed system of orientation for all new faculty and staff and for a greater involvement for them in the School as a whole.

2.4 The Review Group observed some potential organisation, management and staffing 'silos' in the School which are not helpful for whole-School integration, these include:

a) the difference in a sense of 'belonging' within the School between those attached to large research centres (particularly Insight) and those working in more isolated areas of individual research and teaching. Members of this latter group, particularly those who are early-career, report a sense of isolation and lack of opportunity within the School overall.

b) the differences between those working in different parts of the Computer Science building (especially between those in the newer part of the building and those in the older, ground floor section) and between those in the Computer Science building and those in Science North. While not significantly physically remote from each other, this dislocation of faculty and staff does not contribute to the creation of a School community.

c) the focus on those faculty and staff contributing to the active undergraduate degree and those contributing to the taught postgraduate programmes, which play an important role in revenue generation for the School. There was variance in the level of emphasis placed on these two areas in the School's Self-assessment Report, with the undergraduate programme overall receiving and/or utilising a disproportionately smaller amount of space and discussion.

2.5 Reference was made in the Self-assessment Report to a danger posed to the School from losing experienced faculty and staff due to a 'retirement cliff". While a number of senior faculty will retire within the next ten years, this concern was explored by the Review Group

but it did not appear to be perceived as a significant threat by the School as a whole or by the HR Partner. The development of good faculty and staff management practices, including adequately supporting and developing early- and mid-career faculty, should obviate most disruptions caused by the natural retirement cycle.

2.6 The School operates an academic workload model which appears transparent and seems to be perceived as largely positive by most of the faculty and staff. However, the Review Group noted a degree of distortion between the value placed on research supervision within this model which appeared greater than that placed on teaching and/or administrative duties.

2.7 The School should consider offering all faculty and staff an annual career and personal development planning meeting, providing staff some choice in who they would meet. Such meetings would give all faculty and staff an opportunity to discuss matters such as training opportunities, publication and grant application strategies and new teaching development opportunities. This should not be in the form of a performance review but an opportunity to assist in career planning. A development of this approach should encompass both what the individual can do for the School and as well as what the School and University can do for the individual.

2.8 In the past, the School has successfully adopted quite independent, entrepreneurial ways of working – finding unique, local solutions to difficulties and obstacles to progress. The Review Group noted that aspects of this autonomous approach to organisational management are increasingly at odds with the current governance and funding models of the University and considers that the School needs to work more closely within the regulatory and governance structures of the College of Science and those of the University. The Review Group recognises that the challenge will be for the School to do so and yet retain their positive spirit of innovation. Productive and positive relationships were noted to have been forged between the School and a number of the central University services including their HR Partner, UCD International, UCD Registry & NovaUCD. There was less evidence of a strong partnership with UCD Research and early-career faculty in particular reported that they found their services difficult to access.

Commendations:

2.9 The School atmosphere is collegial and faculty and staff articulate a very positive attitude overall to working there.

2.10 Students value the responsive and approachable faculty and staff in the School.

2.11 The current School workload model is a welcome transparent initiative and the principle of the model is supported by most faculty and staff.

2.12 Effective use is made of a very limited number of technical staff.

2.13 In spite of the lack of promotional opportunities, a strong, effective administrative team, who are widely appreciated, is in place.

2.14 The School Student Support Office is well-used and appreciated by students and there is good use of a student support officer to support student retention.

2.15 The new faculty and staff mentoring scheme is a positive step but should not be relied upon as the only means of staff development.

Recommendations

2.16 Re-balance the academic workload model to place greater value on teaching and administration in relation to PhD supervision.

2.17 Consider offering professional development annual planning meetings for each individual member of School staff (faculty, administrative and technical) – this should not be in the form of a performance management exercise.

2.18 Introduce a seminar series to allow for academic and intellectual cohesion across the School; this initiative will need to be strongly supported and seen to be valued, supported and attended by senior faculty.

2.19 The development of a whole-School community needs to be encouraged and should be underpinned by, for example, all-School work and social events that support staff cohesion.

2.20 The School needs to guard against the creation of 'silos'– 'big Centres' vs independent researchers; new early-career faculty and staff vs more senior faculty and staff; undergraduate vs taught graduate programmes (including possible divisions between faculty and staff contributing to those areas); the Computer Science Building vs Science North and divisions between parts of Computer Science Building itself.

2.21 In relation to space, the Review Group noted that the students would like more social areas to facilitate networking. They would also like to be more involved in the research life of the School community. This would also address the issue raised of the high proportion of non-Irish students, which can limit the "Irish experience" for those coming from abroad. The School should consider arranging more social events for students, faculty and staff

2.22 Consider implementing an annual anonymous faculty and staff morale survey.

2.23 The Review Group recommends that the School work more closely within the regulatory and governance structures of the College of Science and those of the University.

3. Teaching and Curriculum

3.1 There is an overall sense of commitment to high quality teaching at all levels within the School. The students at both undergraduate and taught postgraduate levels see the School

as approachable, responsive and helpful - this applies to academic, administrative and technical staff.

3.2 In recent years, the School has simplified its undergraduate programmes and now offers a single BSc (Computer Science) programme. The new BSc (Computer Science) programme started in September 2010 with an enhanced curriculum, a different, more modern approach to teaching and learning, and state of the art teaching facilities. This has increased group and collaborative working, independent learning and, in general, supports a more active approach to learning on the part of the students. There is scope to revise and strengthen the Software Engineering component of the undergraduate curriculum. When conducting future curriculum reviews, it is advised that the Association for Computing Machinery (ACM) and IEEE (the world's largest professional association for the advancement of technology) curricula should be used to inform decisions.

3.3 The School has a large number of full- and part-time taught postgraduate students in a wide range of programmes; namely: the innovative MSc Computer Science by Negotiated Learning (MScNL), the MSc Advanced Software Engineering (MScASE), the MSc Digital Investigations and Forensic Computing (MScDIFC), the MSc Cognitive Science (MScCogSci), the MSc Forensic Computing and CyberCrime (MScFCCI), the MSc Computer Science Conversion (MScConv), and the Higher Diploma in Computer Science (HDip). The School is also developing new modules, for example, the Data Science Minor, which, if designed properly, may have the potential to be attractive to students from many disciplines.

3.4 There is good student-to-student communication across undergraduate years. This helps students make informed decisions in, for example, balancing their workload. The School seems to have addressed student feedback in their attention to emerging trends in the University's online module feedback system and in staff-student fora. However, a very small number of persistently underperforming undergraduate modules with both poor evaluations and low pass rates were identified as a continuing issue for students.

3.5 The School remarked on low lecture attendance and students confirm this. It is not clear why this should be so. The Review Group does not think that putting lecture material online is the sole explanation for this phenomenon as many institutions do this and do not see the same drop-off in attendance. At the same time, the Review Group got a consistent message from faculty, staff and students that quality of teaching is considered important at UCD and within the School. The Review Group noted that plans are in place to revise the structure of some modules, utilising a more blended approach (part face-to-face and part online) to see if this improves student engagement. Some concerns were raised regarding the time taken to provide feedback to students in some modules – if this were addressed it may also have a positive impact on student engagement.

3.6 The School uses a number of different Virtual Learning Environments [VLEs] (Moodle/ Blackboard/ individual faculty/staff website] for different modules. The Review Group noted that this causes a lot of confusion for students and not enough information is given to students to assist them in finding course information across different VLEs. Students have to set up their own system of forwarding 'alert' emails from faculty and staff that can be sent

to them from up to three different sites. Serious consideration needs to be given to what can be done to improve the student learning experience in this regard, e.g., have a "dummy" front page for each course in each VLE giving students information about where every individual module is actually housed, so that they always have a path to the information they need.

3.7 The School is committed to recruiting international students, primarily into the taught research programmes, for reason of revenue and diversity. The School has concerns that the international mix in the Negotiated Learning programme is unbalanced with high numbers (43%) of Indian students on the programme, a situation that they wish to address. The Review Group is of the opinion that the success of recruitment of students from India may reflect the reality of the international student markets in Computer Science. The Review Group cautions the School about the viability of the proposed increased recruitment of US students (an already very competitive market) and advises that future recruitment should be developed in tandem with, and under advice from, UCD International. The Review Group also advise that the School develop an International Recruitment Strategy for their programmes as a whole, undergraduate and postgraduate.

3.8 The Review Group noted that the School has an issue with maintaining an adequate pool of qualified demonstrators and tutors at a time when numbers on the undergraduate programme, who need the support of tutors and demonstrators, are growing.

Commendations

3.9 There is an overall sense of commitment to high quality teaching at all levels within the School and students, faculty and staff are aware of this culture of teaching.

3.10 Students see the School as responsive to their suggestions and overall the School is also responsive to the trends emerging from the students' online module feedback.

3.11 The School's research is well integrated into the curriculum in-line with UCD policy. The first year course showcasing research (Computer Science in Practice) is particularly valuable as are the final year projects.

3.12 There is good student-to-student communication across undergraduate years and good staff-student communication across all programmes.

3.13 Teaching spaces are well designed and used, particularly the first year teaching in the Active Learning room, this is good for class interaction and engagement. It was noted that growing student numbers puts some of these spaces under pressure.

3.14 There are very strong innovative taught postgraduate programmes, including: Cybercrime, Forensic Computing and Negotiated Learning. These are currently providing much needed funds for the School. These are attractive to some international cohorts.

Recommendations

3.15 The School must ensure they provide timely feedback to students. The Review Group recommends having a guideline, such as: "marking and feedback will normally occur within three weeks of assignment submission". Where this guideline cannot be met, students should be given notice of the date when they can expect to receive feedback, which should be timely.

3.16 The Review Group recommends that the School transition to using more formative and less summative assessment. This would allow feedback to be given more freely and informally, for example, via model answers to sample problems. By reducing the amount of summative assessment, the marking load would also be reduced.

3.17 Review the structure and remit of the current BSc (Computer Science) Programme Board in line with University guidelines, including removing its role as being the primary source of oversight of teaching and learning quality initiatives for the School. There is a need to establish a separate stronger, effective Teaching & Learning/Educational Development group across both undergraduate and taught postgraduate programmes to share effective teaching, learning and assessment practices, curriculum development etc. This forum needs to involve new faculty and staff for the purpose of mentoring and enhancing their teaching duties.

3.18 Consider the "student experience" when using VLEs; the random use of at least 3 VLEs across programmes does not seem to be designed to meet the educational needs of the students, who find it confusing. Where it is necessary to use a different VLE to that used in the University as a whole it should be underpinned by more robust information for students.

3.19 Provide students with information about matters such as software they need to install and readings they will need to do, earlier in the programme, e.g. at the end of the previous semester, to allow students the opportunity to get ahead if they have time to do so.

3.20 The Review Group strongly supports the design and development of a Data Science Minor, but it needs to be fully compliant with UCD regulations and procedures so that it can be widely shared across the University.

3.21 Further programme and School reviews need to pay particular attention to Software Engineering, as it needs revision and strengthening in the undergraduate curriculum.

3.22 Enhance induction for taught graduate students, especially introduction to on-line systems, VLEs etc.

4. Research Activity

4.1 The School currently describes its research as being grouped around

- Knowledge Discovery

- Language and Cognition
- Software and Systems Engineering
- Network and Distributed Systems

4.2 The Review Group considers that the School's major research strength is in Data Analytics, led by the Insight Centre.

4.3 The School aims to rise up the academic rankings, and be in the top 100 of QS World Rankings in Computer Science by 2020. It plans to achieve this chiefly by mentoring and incentivising existing faculty and staff. The Review Group notes that this seems ambitious; the 101-140 group is very competitive and UCD will need to address its standing in academic reputation in particular to achieve this aim.

4.4 The Review Group notes that the School has impressive research strength, already showing in citation counts, h-index etc., which does provide a strong basis for growth, if faculty and staff can be supported in developing further.

4.5 The School hopes and expects that most of the recently appointed early-career faculty will stay in UCD in the long term. This will need attention, as these faculty, if successful, may be expected to receive tempting offers from elsewhere and the difficult economic climate may make it challenging to retain them. Improved mentoring of early-career faculty, and the enhancement of the School's research culture, could help to retain faculty in the School.

4.6 In the context of significant and increasing teaching duties, sabbaticals are an important tool for faculty to use to invigorate their research. It was therefore concerning to the externs to hear that faculty found it was only financially viable to take sabbaticals if they could leave the country to do so, especially since this seems inevitably to discriminate against faculty with family and/or caring responsibilities.

4.7 The previous School review advised that a limit should be placed on the number of PhD students that may be supervised by any one person. It was of concern to this Review Group, that a small number of faculty continue to have very high numbers of PhD students to supervise, while other faculty (particularly those outside of large research groups and/or those at the start of their academic careers), appear to have considerable difficulties in getting any PhD students to supervise. This situation is exacerbated by the higher value put on PhD supervision in the current workload model.

4.8 UCD has established a Doctoral Studies Panel (DSP) system for tracking the progress of PhD students through their degrees to timely completion. However, the Review Group was made aware that this practice was not uniformly in place across the School and that some PhD students may be receiving supervision primarily from post-doctoral students. This situation needs to be addressed as a priority.

Commendations

4.9 Strong research activity especially in Data Analytics.

4.10 Willingness to look at emerging application areas (e.g. SmartTag) and take advantage of major funding opportunities as they arise.

4.11 Research is well integrated into teaching, not only in the taught postgraduate programmes but also in the undergraduate curriculum, from the first year Computer Science in Practice course to the fourth year projects.

4.12 School performance in citation counts, h-index etc., provides a strong basis for growth, if faculty and staff can be supported in developing further.

Recommendations

4.13 The School should aim at rising up the rankings as a stretch goal, but not allow it to feel like a failure if it does not happen quickly. Some of the criteria for success of this aspiration will be beyond the School's control (e.g. national/international research priorities may change – data analytics may wane in strategic importance).

4.14 As recommended by the last School Quality Review, introduce a limit on the number of PhD students that may be supervised by any one person. While this Review Group suggests that a small number of exceptions may be allowable in the short term, a very sound case must be made for any exception. In such cases, appropriate arrangements must be in place for all students to receive adequate supervision from their main supervisor; such arrangements should be documented and shared with the students. In the short-term, the Review Group suggests initially setting the limit high enough that it will not necessitate immediate reallocation of existing PhD students, but with a clear plan of reducing it to a maximum of, for example, eight PhD students to any one supervisor, over a relatively short time-frame e.g. 2/3 years.

4.15 All PhD students must be fully managed under the University's DSP system, as a matter of urgency. The School should implement an overall School PhD Coordinator role to ensure that all students are being supported and processed according to the University PhD regulations, e.g. to check that all expected meetings have taken place and are properly documented.

4.16 New faculty outside the large research groups report a struggle to find PhD students to supervise; there is a need to target PhD scholarships at new faculty, especially those outside the major well-funded groups.

4.17 Provide opportunities for people to hear about one another's research, e.g., have a regular (weekly or two-weekly) research seminar with a mixture of internal and external speakers at which attendance is expected.

4.18 Introduce an internal review process for grant applications, in which anyone submitting a grant proposal is expected to have the finished proposal read and commented on by at least

one colleague before it is submitted. Include newer faculty in this, as commenters may help their development as grant-writers.

4.19 Involve newer faculty in grant-writing and ensure that they are recognised for their contributions even if they cannot be the PIs.

4.20 Nourish areas of research outside the big centres: while the latter are a strength, the School need not focus exclusively on them, partly because it cannot be sure where the "next big idea" will come from, and partly because it is essential to retain expertise needed for a broad-based computer science education.

4.21 Try and address inequalities inherent in the University's sabbatical system, particularly for faculty who cannot travel abroad for lengthy periods of time.

5. Management of Quality and Enhancement

5.1 The School of Computer Science uses a variety of approaches to evaluate the quality of the outputs of the School. This system of management and quality enhancement includes, *inter alia*, engagement with external accreditation processes, programme review, student feedback, closing the feedback loop, generating data on student progression, External Examiner reports, effective recruitment practices and informal mentoring of faculty and staff, in addition to a Staff-Student Liaison Committee.

5.2 In general, the management of quality and enhancement was found to be of a high standard. Faculty, staff and students all were committed to maintaining the highest intellectual standards as well as the most efficient running of the School with the best possible outcomes. There is scope for some improvements in respect of the management of doctoral students (see also 4.8 above).

5.3 There is a limited pool of potential external examiners in this discipline. The School has a high demand for external examiners for their undergraduate modules, taught Masters programmes and PhD students. The School reported that the current University regulations regarding the length of time before the reappointment of any individual external examiner excludes many experts from the current pool of external examiners.

Commendations

5.4 The School has a rigorous oversight process with on-going programme review and development in place. External examiners are employed for all programmes, as well as special externs for specific areas and research domains. The School effectively engages with its External Examiners to assure the academic standards of its modules and awards.

5.5 Accreditation by professional organisations is an important external validation of the quality of the educational programmes in the School and the delivery of learning outcomes.

5.6 In relation to academic oversight:

- The new Masters programmes are innovative and popular, and involve the recent new appointments of younger faculty.
- Staff development: mentoring programme is in place.
- New faculty participate in Teaching and Learning University Programmes and appreciate them.
- There is a general awareness of international best practice (ACM Curriculum).

5.7 The School is aware of issues of plagiarism and has put measures in place to deal with it e.g. it has reconsidered the proportion between continuous assessment and examination.

5.8 The School has a robust system where students can give feedback to the School. The students are enthusiastic about this feedback system and report they "feel heard". See also 3.10 above.

5.9 There is some follow-up on students who have left the programme.

Recommendations

5.10 As well as the BSc (Computer Science) Programme Board which informs curriculum review and development, the Review Group was of the opinion that a separate Teaching and Learning Committee at School level should be formally established, to support new educational initiatives in teaching, learning and assessment in both undergraduate and postgraduate programmes.

5.11 Low rates of pay for tutors/PhD tutors are seen as a barrier to recruiting and retaining good tutors/teaching assistants to support students. Discussions with UCD HR should explore if there are any alternative payment options for tutors/TAs.

5.12 At undergraduate level, care needs to be taken with the number of exceptional Grade Changes requested by the School, which are labour-intensive for staff and unsettling for students. The Review Group supports the School's trialling a new system to re-weight grades to address exceptionally high grades.

5.13 Students should be provided with feedback in a shorter timeframe so they can improve/modify their work standards and practices to inform future performances including examinations.

5.14 In relation to career development for faculty and staff, mentoring could be more formalised: e.g. dates for meeting and timeframes for objectives in an academic career targeted. (See also 2.15 and 2.17 above).

5.15 The School should move from *ad hoc* arrangements to systematic processes to ensure that consistent quality is maintained.

5.16 The School should engage with University Secretariat to consider options to address the challenges faced by the impact of current University regulations on disciplines with a limited pool of potential external examiners.

5.17 An even broader system of survey feedback might be developed to collect views of Computer Science graduates on their programme, as well as focus groups with those still at the University. Some exploration of who responds and who does not, at both undergraduate and postgraduate levels might reveal areas where future recruitment might be investigated and developed.

6. Support Services

6.1 The School avails of a wide variety of support and services provided by UCD services that are external to the School including IT Services, UCD Human Resources, Library, T&L support, research support, and general services. Feedback from the School indicated that the School has a good relationship with University support units and that they are found to be good in general. In particular, the School noted that Registry is very responsive on issues like gradebook, registration of students etc. and that IT Services systems / InfoHub, Room Allocations, Global Admissions, and the College HR Partner are excellent. The School has very effective technical support and administration support in place within the School.

6.2 The Review Group noted that UCD Human Resources has streamlined the processes for the recruitment and set up of post-doctoral research staff, including the provision of service level agreements for the recruitment of research-funded staff. However, a number of issues with recruitment processes for the appointment of post-doctoral research staff were highlighted. When appointments are made, the School reported experiencing significant delays in setting up new employees on the system, issuing contracts, etc.

Commendations

6.3 The School is to be commended for establishing and maintaining good communication channels between the School and University-wide service providers.

6.4 Student support is good. There is a good layer of "student help" available on computer 'issues' before the students need to go for technical support. Harmonising faculty and staff VLE use across the School (see Recommendation 3.20) should contribute to minimising some related technical issues for students.

6.5 For faculty, the recently appointed research administrator should help with research proposals and grant applications.

6.6 Interaction with UCD Human Resources is positive overall and HR support for young researchers and PI's Research funded recruitment is appreciated.

Recommendations

6.7 HR should consider whether recruitment processes could be streamlined, particularly in the appointment of post-doctoral research staff.

6.8 It is recommended that the School Engagement Officer should liaise more closely with the University's Student Advisors team, to support and enhance her current work, which is noted as being very effective.

6.9 The Research Office should consider reviewing supports for faculty making grant applications and the processes for setting up grants to see how they could be streamlined and made easier to access.

7. External Relations

7.1 Overall, the relationship between the School of Computer Science and industry are seen by industry representatives as very positive, open and collaborative. The State funding organisation, the Higher Education Authority (HEA), values computer science skills as a key part of the national skills strategy and continues to fund the Computer Science conversion programme. This programme allows those with an undergraduate qualification in other disciplines to gain an additional 'add-on' undergraduate qualification in computer science, thereby providing an extra source of new graduates in computer science into the jobs market. It is noted that the School expresses a preference for increasing the numbers on this conversion programme while keeping numbers static on the Bachelor of Computer Science undergraduate degree. The financial and educational viability of this approach should be kept under review in the longer term, in line with the initial and medium term employment outcomes of both cohorts of graduates.

7.2 Feedback from industry representatives indicated that, in comparison with other Irish computer science graduates, UCD computer science graduates demonstrate good technical skills and have been trained to engage with industry-type issues. In general, they demonstrate a pro-active approach to their work and the capacity to work in teams. However, they also noted that UCD Computer Science graduates' training should include better communication skills in general and interview performance skills in particular.

7.3 In discussions with the Review Group, industry representatives strongly recommended that a 6-month internship should become a mandatory part of the School's undergraduate programmes instead of the existing shorter optional internship model. The viability of this suggestion would need to be explored by the School in the light of the other competing programme demands.

7.4 Industry representatives specifically identify that the following skill sets need to be developed in students on the main undergraduate programme and the conversion programme:

a. a better appreciation of the challenges faced by start-up companies, including awareness of the creation of minimal viable products.

b. a better understanding of the financial aspects of SMEs.

c. the introduction of an increased emphasis on entrepreneurship, ideation and innovation in the curriculum.

7.5 As noted elsewhere in this Report, there is a general overall lack of alignment between some of the practices of the School of Computer Science and those of the College of Science and the University in general. In terms of external relations and international recruitment, UCD International recommends that the School needs to develop its recruitment strategy more closely in line with the established recruitment goals for the College of Science and the University.

Commendations

7.6 Relationships between the School of Computer Science and industry are seen by industry representatives as very positive, open and collaborative.

7.7 The Higher Education Authority values computer science skills as a key part of the Irish national skills strategy and continues to support the undergraduate training of students in two cohorts, direct entry via the CAO and a conversion higher diploma for graduates.

7.8 Representatives from industry report that UCD computer science graduates demonstrate good technical skills and have been trained to engage with industry-type issues. In general, they demonstrate a pro-active approach to their work and the capacity to work in teams.

Recommendations

7.9 Industry representatives identify the following skills that could be better developed in UCD computer science graduates:

a. communication skills in general and interview performance skills in particular.

b. the capacity to understand and articulate the skills they have acquired in their programmes of study to potential employers.

c. a better appreciation of the challenges faced by start-up companies, including awareness of the creation of minimal viable products.

d. a better understanding of the financial aspects of SMEs.

e. increased entrepreneurship, ideation and innovation skills.

7.10 The feasibility of including a mandatory 6-month internship as part of the School's undergraduate programmes should be explored by the School.

7.11 The Review Group supports the UCD International view and recommends that the School needs to develop its recruitment strategy more closely in line with the established recruitment goals for the College of Science and the University.

APPENDIX 1

UCD School of Computer Science – Composite List of Commendations and Recommendations

This Appendix contains a composite list of all commendations and recommendations made by the Review Group for the UCD School of Computer Science and should be read in conjunction with the specific chapter above. *(Please note that the paragraph references below refer to the relevant paragraphs in the Report text).*

2. Management and Resources

Commendations:

2.9 The School atmosphere is collegial and faculty and staff articulate a very positive attitude overall to working there.

2.10 Students value the responsive and approachable faculty and staff in the School.

2.11 The current School workload model is a welcome transparent initiative and the principle of the model is supported by most faculty and staff.

2.12 Effective use is made of a very limited number of technical staff.

2.13 In spite of the lack of promotional opportunities, a strong, effective administrative team, who are widely appreciated, is in place.

2.14 The School Student Support Office is well-used and appreciated by students and there is good use of a student support officer to support student retention.

2.15 The new faculty and staff mentoring scheme is a positive step but should not be relied upon as the only means of staff development.

Recommendations

2.16 Re-balance the academic workload model to place greater value on teaching and administration in relation to PhD supervision.

2.17 Consider offering professional development annual planning meetings for each individual member of School staff (faculty, administrative and technical) – this should not be in the form of a performance management exercise.

2.18 Introduce a seminar series to allow for academic and intellectual cohesion across the School; this initiative will need to be strongly supported and seen to be valued, supported and attended by senior faculty.

2.19 The development of a whole-School community needs to be encouraged and should be underpinned by, for example, all-School work and social events that support staff cohesion.

2.20 The School needs to guard against the creation of 'silos'– 'big Centres' vs independent researchers; new early-career faculty and staff vs more senior faculty and staff; undergraduate vs taught graduate programmes (including possible divisions between faculty and staff contributing to those areas); the Computer Science Building vs Science North and divisions between parts of Computer Science Building itself.

2.21 In relation to space, the Review Group noted that the students would like more social areas to facilitate networking. They would also like to be more involved in the research life of the School community. This would also address the issue raised of the high proportion of non-Irish students, which can limit the "Irish experience" for those coming from abroad. The School should consider arranging more social events for students, faculty and staff

2.22 Consider implementing an annual anonymous faculty and staff morale survey.

2.23 The Review Group recommends that the School work more closely within the regulatory and governance structures of the College of Science and those of the University.

B. Teaching and Curriculum

<u>Commendations</u>

3.9 There is an overall sense of commitment to high quality teaching at all levels within the School and students, faculty and staff are aware of this culture of teaching.

3.10 Students see the School as responsive to their suggestions and overall the School is also responsive to the trends emerging from the students' online module feedback.

3.11 The School's research is well integrated into the curriculum in-line with UCD policy. The first year course showcasing research (Computer Science in Practice) is particularly valuable as are the final year projects.

3.12 There is good student-to-student communication across undergraduate years and good staff-student communication across all programmes.

3.13 Teaching spaces are well designed and used, particularly the first year teaching in the Active Learning room, this is good for class interaction and engagement. It was noted that growing student numbers puts some of these spaces under pressure.

3.14 There are very strong innovative taught postgraduate programmes, including: Cybercrime, Forensic Computing and Negotiated Learning. These are currently providing much needed funds for the School. These are attractive to some international cohorts.

Recommendations

3.15 The School must ensure they provide timely feedback to students. The Review Group recommends having a guideline, such as: "marking and feedback will normally occur within three weeks of assignment submission". Where this guideline cannot be met, students should be given notice of the date when they can expect to receive feedback, which should be timely.

3.16 The Review Group recommends that the School transition to using more formative and less summative assessment. This would allow feedback to be given more freely and informally, for example, via model answers to sample problems. By reducing the amount of summative assessment, the marking load would also be reduced.

3.17 Review the structure and remit of the current BSc (Computer Science) Programme Board in line with University guidelines, including removing its role as being the primary source of oversight of teaching and learning quality initiatives for the School. There is a need to establish a separate stronger, effective Teaching & Learning/Educational Development group across both undergraduate and taught postgraduate programmes to share effective teaching, learning and assessment practices, curriculum development etc. This forum needs to involve new faculty and staff for the purpose of mentoring and enhancing their teaching duties.

3.18 Consider the "student experience" when using VLEs; the random use of at least 3 VLEs across programmes does not seem to be designed to meet the educational needs of the students, who find it confusing. Where it is necessary to use a different VLE to that used in the University as a whole it should be underpinned by more robust information for students.

3.19 Provide students with information about matters such as software they need to install and readings they will need to do, earlier in the programme, e.g. at the end of the previous semester, to allow students the opportunity to get ahead if they have time to do so.

3.20 The Review Group strongly supports the design and development of a Data Science Minor, but it needs to be fully compliant with UCD regulations and procedures so that it can be widely shared across the University.

3.21 Further programme and School reviews need to pay particular attention to Software Engineering, as it needs revision and strengthening in the undergraduate curriculum.

3.22 Enhance induction for taught graduate students, especially introduction to on-line systems, VLEs etc.

C. Research Activity

Commendations

4.9 Strong research activity especially in Data Analytics.

4.10 Willingness to look at emerging application areas (e.g. SmartTag) and take advantage of major funding opportunities as they arise.

4.11 Research is well integrated into teaching, not only in the taught postgraduate programmes but also in the undergraduate curriculum, from the first year Computer Science in Practice course to the fourth year projects.

4.12 School performance in citation counts, h-index etc., provides a strong basis for growth, if faculty and staff can be supported in developing further.

Recommendations

4.13 The School should aim at rising up the rankings as a stretch goal, but not allow it to feel like a failure if it does not happen quickly. Some of the criteria for success of this aspiration will be beyond the School's control (e.g. national/international research priorities may change – data analytics may wane in strategic importance).

4.14 As recommended by the last School Quality Review, introduce a limit on the number of PhD students that may be supervised by any one person. While this Review Group suggests that a small number of exceptions may be allowable in the short term, a very sound case must be made for any exception. In such cases, appropriate arrangements must be in place for all students to receive adequate supervision from their main supervisor; such arrangements should be documented and shared with the students. In the short-term, the Review Group suggests initially setting the limit high enough that it will not necessitate immediate reallocation of existing PhD students, but with a clear plan of reducing it to a maximum of, for example, eight PhD students to any one supervisor, over a relatively short time-frame e.g. 2/3 years.

4.15 All PhD students must be fully managed under the University's DSP system, as a matter of urgency. The School should implement an overall School PhD Coordinator role to ensure that all students are being supported and processed according to the University PhD regulations, e.g. to check that all expected meetings have taken place and are properly documented.

4.16 New faculty outside the large research groups report a struggle to find PhD students to supervise; there is a need to target PhD scholarships at new faculty, especially those outside the major well-funded groups.

4.17 Provide opportunities for people to hear about one another's research, e.g., have a regular (weekly or two-weekly) research seminar with a mixture of internal and external speakers at which attendance is expected.

4.18 Introduce an internal review process for grant applications, in which anyone submitting a grant proposal is expected to have the finished proposal read and commented on by at least one colleague before it is submitted. Include newer faculty in this, as commenters may help their development as grant-writers.

4.19 Involve newer faculty in grant-writing and ensure that they are recognised for their contributions even if they cannot be the PIs.

4.20 Nourish areas of research outside the big centres: while the latter are a strength, the School need not focus exclusively on them, partly because it cannot be sure where the "next big idea" will come from, and partly because it is essential to retain expertise needed for a broad-based computer science education.

4.21 Try and address inequalities inherent in the University's sabbatical system, particularly for faculty who cannot travel abroad for lengthy periods of time.

D. Management of Quality and Enhancement

Commendations

5.4 The School has a rigorous oversight process with on-going programme review and development in place. External examiners are employed for all programmes, as well as special externs for specific areas and research domains. The School effectively engages with its External Examiners to assure the academic standards of its modules and awards.

5.5 Accreditation by professional organisations is an important external validation of the quality of the educational programmes in the School and the delivery of learning outcomes.

5.6 In relation to academic oversight:

- The new Masters programmes are innovative and popular, and involve the recent new appointments of younger faculty.
- Staff development: mentoring programme is in place.
- New faculty participate in Teaching and Learning University Programmes and appreciate them.
- There is a general awareness of international best practice (ACM Curriculum).

5.7 The School is aware of issues of plagiarism and has put measures in place to deal with it e.g. it has reconsidered the proportion between continuous assessment and examination.

5.8 The School has a robust system where students can give feedback to the School. The students are enthusiastic about this feedback system and report they "feel heard". See also 3.10 above.

5.9 There is some follow-up on students who have left the programme.

Recommendations

5.10 As well as the BSc (Computer Science) Programme Board which informs curriculum review and development, the Review Group was of the opinion that a separate Teaching and Learning Committee at School level should be formally established, to support new educational initiatives in teaching, learning and assessment in both undergraduate and postgraduate programmes.

5.11 Low rates of pay for tutors/PhD tutors are seen as a barrier to recruiting and retaining good tutors/teaching assistants to support students. Discussions with UCD HR should explore if there are any alternative payment options for tutors/TAs.

5.12 At undergraduate level, care needs to be taken with the number of exceptional Grade Changes requested by the School, which are labour-intensive for staff and unsettling for students. The Review Group supports the School's trialling a new system to re-weight grades to address exceptionally high grades.

5.13 Students should be provided with feedback in a shorter timeframe so they can improve/modify their work standards and practices to inform future performances including examinations.

5.14 In relation to career development for faculty and staff, mentoring could be more formalised: e.g. dates for meeting and timeframes for objectives in an academic career targeted. (See also 2.15 and 2.17 above).

5.15 The School should move from *ad hoc* arrangements to systematic processes to ensure that consistent quality is maintained.

5.16 The School should engage with University Secretariat to consider options to address the challenges faced by the impact of current University regulations on disciplines with a limited pool of potential external examiners.

5.17 An even broader system of survey feedback might be developed to collect views of Computer Science graduates on their programme, as well as focus groups with those still at the University. Some exploration of who responds and who does not, at both undergraduate and postgraduate levels might reveal areas where future recruitment might be investigated and developed.

E. Support Services

Commendations

6.3 The School is to be commended for establishing and maintaining good communication channels between the School and University-wide service providers.

6.4 Student support is good. There is a good layer of "student help" available on computer 'issues' before the students need to go for technical support. Harmonising faculty and staff VLE use across the School (see Recommendation 3.20) should contribute to minimising some related technical issues for students.

6.5 For faculty, the recently appointed research administrator should help with research proposals and grant applications.

6.6 Interaction with UCD Human Resources is positive overall and HR support for young researchers and PI's Research funded recruitment is appreciated.

Recommendations

6.7 HR should consider whether recruitment processes could be streamlined, particularly in the appointment of post-doctoral research staff.

6.8 It is recommended that the School Engagement Officer should liaise more closely with the University's Student Advisors team, to support and enhance her current work, which is noted as being very effective.

6.9 The Research Office should consider reviewing supports for faculty making grant applications and the processes for setting up grants to see how they could be streamlined and made easier to access.

F. External Relations

Commendations

7.6 Relationships between the School of Computer Science and industry are seen by industry representatives as very positive, open and collaborative.

7.7 The Higher Education Authority values computer science skills as a key part of the Irish national skills strategy and continues to support the undergraduate training of students in two cohorts, direct entry via the CAO and a conversion higher diploma for graduates.

7.8 Representatives from industry report that UCD computer science graduates demonstrate good technical skills and have been trained to engage with industry-type issues. In general, they demonstrate a pro-active approach to their work and the capacity to work in teams.

Recommendations

7.9 Industry representatives identify the following skills that could be better developed in UCD computer science graduates:

a. communication skills in general and interview performance skills in particular.

b. the capacity to understand and articulate the skills they have acquired in their programmes of study to potential employers.

c. a better appreciation of the challenges faced by start-up companies, including awareness of the creation of minimal viable products.

d. a better understanding of the financial aspects of SMEs.

e. increased entrepreneurship, ideation and innovation skills.

7.10 The feasibility of including a mandatory 6-month internship as part of the School's undergraduate programmes should be explored by the School.

7.11 The Review Group supports the UCD International view and recommends that the School needs to develop its recruitment strategy more closely in line with the established recruitment goals for the College of Science and the University.

APPENDIX 2

UCD School of Computer Science – Response to the Review Group Report

The School is grateful to the reviewers and the UCD Quality Office for the effort they have put in to the review process. We welcome the commendations and the recommendations for improvement.

The School's proposals to address these recommendations are detailed below.

Recommendations and Responses

- *The development of a whole School community needs to be encouraged and should be underpinned by, for example, all School work and social events that support staff cohesion. In particular, new faculty and staff should be given a more robust programme of orientation and integration into the School.*

  Response: This issue is exacerbated by the size of the School. As the School has grown, work and social events at research group level have displaced School level activities. The *Big Ideas in Computer Science* seminar series initiated in 2015, was an attempt to foster activity at a School level, however staff participation was patchy. At the School Plenary meeting on 27th June 2016, we agreed to try again with a Brown Bag lunchtime session on grand challenges and research problem solving.

  We will establish a Social Committee to organise regular social events. The plan is to start with a fortnightly coffee morning and an evening event twice a semester.

- *The School must ensure they provide timely feedback to students. The Review Group recommends having a guideline, such as: "marking and feedback will normally occur within three weeks of assignment submission". Where this guideline cannot be met, students should be given notice of the date when they can expect to receive feedback, which should be timely.*

  Response: The School agreed to implement these guidelines at the School Plenary meeting on 27th June 2016.

- *Consider the "student experience" when using VLEs; the random use of at least 3 VLEs across programmes does not seem to be designed to meet the educational needs of the students, who find it confusing. Where it is necessary to use a different VLE to that used in the University as a whole it should be underpinned by more robust information for students.*

  Response: We have two VLEs in use in the School: Moodle and Blackboard. Some lecturers also make teaching materials available through course webpages. Each year the School surveys all CS students to assess the level of satisfaction with systems and services provided by the School. Moodle always scores higher than Blackboard in these surveys. Given that Moodle is most popular with faculty, staff and students, we will ensure that each COMP module has a standard

Moodle anchor page that contains the teaching materials or a link to where the materials are located.

- *The School should aim at rising up the rankings as a stretch goal, but not allow it to feel like a failure if it does not happen quickly. Some of the criteria for success of this aspiration will be beyond the School's control (e.g. national/international research priorities may change – data analytics may wane in strategic importance).*

  Response: In the Self-assessment Report, the School identified target metrics (Section 6 and Appendix XXVII) for publication and research grants to address this stretch goal. The School will strive to meet these targets over the next five years. The School's mentoring system will emphasise these target metrics.

- *In the past, the School has successfully adopted quite independent, entrepreneurial ways of working – finding unique, local solutions to difficulties and obstacles to progress. The Review Group noted that aspects of this autonomous approach to organisational management are increasingly at odds with the current governance and funding models of the University and recommends that the School work more closely within the regulatory and governance structures of the College of Science and those of the University.*

  Response: The administrative structures in the School are now reasonably mature so the School can be expected to conform to the University's regulations and governance structures in the future.

- *All PhD students must be fully managed under the University's DSP system, as a matter of urgency. The School should implement an overall School PhD Coordinator role to ensure that all students are being supported and processed according to the University PhD regulations, e.g. to check that all expected meetings have taken place and are properly documented.*

  Response: A tracking system has been set up so that the School Manager can check that DSP meetings are taking place as required by the University's DSP system and, where necessary, alert students to the need to arrange a meeting with their DSP.

- *The feasibility of including a mandatory 6-month internship as part of the School's undergraduate programmes should be explored by the School.*

  Response: The view in the School is that this cannot be done without moving to a 3+2 degree structure, otherwise it would displace 30 taught credits in Stages 3 or 4 of the Computer Science BSc. The BSc Programme Board will review the option of moving to a 3+2 structure along the lines of the UCD Engineering undergraduate structure.

APPENDIX 3

Quality Review – UCD School of Computer Science: 5-10 March 2016

Site Visit Timetable

Pre-Visit Briefing Prior to Site Visit – Monday, 7 March 2016	
17.00-19.00	RG meet in the hotel to review preliminary issues and to confirm work schedule and assignment of tasks for the site visit – **RG and UCD Quality Office only**
19.15	Dinner for the RG hosted by the UCD Deputy President, Vice-President for Academic Affairs and Registrar – **RG, UCD Deputy President and UCD Quality Office only**

Day 1: Tuesday, 8 March 2016 **Venue: Computer Science Boardroom**	
09.00-09.30	Private meeting of Review Group (RG)
09.30-10.15	RG meet with **Head of School and members of senior faculty and staff**
10.15-10.30	Break
10.30 – 11.15	RG meet with **Principal, UCD College of Science**
11.15 – 11.30	Tea/coffee break
11.30 – 12.15	RG meet with **SAR Coordinating Committee**
12.15-12.45	Break – RG review key observations and prepare for lunch time meeting
12.45-13.45	**Working lunch (buffet)** – meeting with employers and other external stakeholders)
13.45-14.15	RG review key observations
14.15-15.00	RG meet with **College Finance Manager, College HR Partner** and **Head of School,** to outline School's financial situation and resources
15.00-15.15	RG tea/coffee break

15.15-16.00	RG meet with support staff representatives
16.00-16.15	Break
16.15-17.00	RG meet **UCD Programme Dean(s), Director of Programme Office** and representatives from **School Programme Office**
17.00-17.15	Break
17.15-18.15	**Tour of facilities**
18.15	RG depart

Day 2: Wednesday, 9 March 2016
Venue: Computer Science Boardroom

08.45-09.00	Private meeting of the RG
09.00-09.45	RG meet **University support service representatives** from UCD Registry, Assessment, UCD International, and Research Finance
09.45-10.00	Break
10.00-10.45	RG meet with a representative group of **postgraduate students** (taught and research) **and recent graduates** (PG and UG)
10.45-11.00	RG tea/coffee break
11.00-12.00	RG meet with the **School Research Committee** (and other faculty and staff members nominated by the Head of School)
12.00-12.15	RG private meeting - review key observations
12.15-13.00	RG meet with **representative group of undergraduate students**
13.00-13.45	Lunch – Review Group only
13.45-15.00	RG meet with **representative group of faculty** – primary focus on Teaching and Learning, and Curriculum issues.
15.00-15.15	RG private meeting - review key observations
15.15-16.00	RG meet with **recently appointed members of faculty and staff**
16.00-16.15	RG private meeting - review key observations

16.15-17.00	RG meet with **Postdocs**
17.00-17.15	RG private meeting - review key observations
17.15-18.00	RG available for private individual meetings with faculty and staff
18.00-18.30	RG private meeting – review key observations/findings
18.30	RG depart

Day 3: Thursday, 10 March 2016
Venue: Computer Science Boardroom

09.00-09.30	Private meeting of RG
09.30-10.30	RG begin preparing draft RG Report
10.30-10.45	Break
10.45-11.15	RG continue preparing draft RG Report
11.15-11.35	RG meet with UCD Chief Technology Officer
11.35-12.30	RG continue preparing draft RG Report
12.30-13.15	Lunch
13.15-15.15	RG finalise first draft of RG Report and feedback commendations/recommendations
15.15-15.30	RG meet with **College Principal** and **Head of School** to feedback initial outline commendations and recommendations
15.30-15.45	Break
16.15	**Exit presentation** to all available faculty and staff of the unit – summarising the principal commendations/recommendations of the Review Group
16.45	Review Group depart