



UCC

Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

**UNIVERSITY COLLEGE CORK
NATIONAL UNIVERSITY OF IRELAND, CORK**

QUALITY IMPROVEMENT/QUALITY ASSURANCE

PEER REVIEW GROUP REPORT

DEPARTMENT OF PHYSICS

COLLEGE OF SCIENCE, ENGINEERING & FOOD SCIENCE

ACADEMIC YEAR 2010/2011

Date 26 May 2011

PEER REVIEW GROUP MEMBERS

Name	Position/Discipline	Institution
Professor Nora O'Brien	School of Food & Nutritional Sciences	University College Cork
Professor John Morrison (Rapporteur)	Department of Computer Science	University College Cork
Professor Gerard O'Sullivan (CHAIR)	College of Engineering, Mathematical & Physical Sciences, School of Physics	University College Dublin
Dr. Graham Smith	School of Physics & Astronomy	University of St. Andrews, Scotland.
Professor Luan Ahma (Observer)	Vice-Rector	University of Prishtina, Kosova

TIMETABLE OF THE SITE VISIT

Timetable of the site visit

The Peer Review Group (PRG) thanks the Quality Promotion Unit for its support before and during the site visit. The timetable was both suitable and appropriate with minor revisions. Most of the interviews and discussions took place within the allocated times, although a little flexibility was allowed for more time to be taken in order to facilitate deeper discussions.

PEER REVIEW

Methodology

The Peer Review Group actively participated in the discussions and information gathering exercise. Professor O'Sullivan took the role of Chair of the PRG. Professor Morrison took the role of Rapporteur. Professor O'Sullivan, as Chair, presented the draft report on behalf of the PRG at the exit presentation to staff of the Department of Physics while Dr. Smith made a few additional comments. All members of the PRG collectively prepared the report.

All members of the PRG visited the Tyndall Institute, UCC Library and Kane Building. The site visits to facilities were very well organized and gave an excellent impression and overview of the research and teaching facilities of the Department.

The site visit programme was appropriate and informative. Discussions with individuals were open and frank, and helpful to the PRG, in formulating its decisions and recommendations for this report. The summary PowerPoint presentation, made by Professor Fahy before the meeting with Departmental staff, highlighted the main recommendations prioritized in the Self Assessment Report and helped guide and focus the subsequent discussion. The Department provided comprehensive documentation in hardcopy as well as a series of web based annexes which contained underlying background information such as staff publications and citation information, extern examiners reports and Department and College Strategic Planning documents. Unfortunately, the confidential comments prepared by the staff were not made available to the PRG as they were withdrawn by the Head of Department because of a HR issue. Discussion with the College of SEFS HR Partner clarified that this had indeed been the most appropriate course of action.

The PRG was very impressed by the commitment and engagement of the staff, students and stakeholders who participated in the interviews. In particular, the feedback obtained by class representatives and the documentation prepared by the postgraduate students was most helpful.

The Report was drafted during the site visit, and was finalized, amended and edited by all members of the PRG during the week following the site visit, using electronic communications. This process was coordinated by Professor Morrison.

OVERALL ANALYSIS

Self-Assessment Report

The Self-Assessment Report (SAR) covered all required assessment areas, and provided the PRG with a good overview and sense of a Department with a clear commitment to excellence in both teaching and research. It affirms the quality of the programmes and research within the Department. However, despite a major increase in research performance and an explosion in PhD numbers during the past decade, there was a widespread belief that the visibility and appreciation of the Department within UCC was significantly lower than it deserved. A number of recently retired staff had not been replaced and teaching and research supervision loads had reached saturation. The Department also felt that it had been unfairly judged in a recent university wide Research Quality Review exercise. Moreover it was apparent that the more progress was needed on implementation of the recommendations of the 2000/2001 quality review panel. In particular those recommendations, with regard to internal communications, establishment of a number of committees and a rotating headship have not been addressed in a meaningful way. The SAR concluded by identifying a number of items that needed to be addressed: resolution of the Departmental structure within the new College

Structure, clarification of the Physics-Tyndall relationship, the urgent need for new staff appointments, provision of additional space and upgrading of existing teaching laboratories, introduction of annual reviews of postgraduate student performance and the need to ensure continuity and coherence in undergraduate programmes following from recent course reorganization.

In summary, the PRG affirms the quality of the programmes and the excellence of research within the Department. It is clear that the student experience is a positive one and that external stakeholders have a good relationship with the Department. However, the PRG is of the opinion that the visibility of the Department could be considerably strengthened by a clearer, more transparent management structure. Moreover, because of the pivotal role played by UCC Physics as a core discipline underpinning teaching across a range of degree programmes and research within Tyndall, the PRG is strongly of the view that the issues raised in the SAR need to be addressed urgently.

SWOT Analysis

The PRG reviewed the SWOT analysis and accepts it as a fair and honest reflection of the Department during the period under review.

Strengths

The PRG agrees that a major strength of the Department is the quality of its undergraduate and postgraduate students, the strong growth in postgraduate student numbers and its access to the world leading research facilities available at Tyndall. All staff are research active and have excellent publication and citation records as well as strong international links. The Department has traditionally benefited from good internal connection to the School of Mathematics which has resulted in their producing outstanding graduates over many years.

Weaknesses

The weaknesses identified stem largely from the unresolved management issues, high workloads, lack of visibility within UCC, loss of skills through retirements, lack of funding for teaching laboratories and upgrading of laboratory space within the Kane building.

Opportunities

The opportunities identified included further leveraging the connection to Tyndall, introduction of new undergraduate courses to increase undergraduate FTEs and the possibility of amalgamation into a larger structure provided by the reorganization of UCC Departments into a College Structure. The PRG were not convinced that the latter might be an optimum configuration for a core discipline such as Physics.

Threats

Threats included loss of staff through retirement, an excessive bias towards Tyndall related activity, declining numbers of students with the requisite background in physics and mathematics and competition for postgraduate students posed by the Dublin Physics Graduate School.

Benchmarking

The PRG considers that the benchmarking exercise was performed appropriately and fairly. The Departments selected, UCC Biochemistry, TCD Physics, University of St. Andrews and University of Surrey, were well chosen and appropriate. The PRG accepts the conclusions of the Department in relation to each topic considered.

FINDINGS OF THE PEER REVIEW GROUP

Department/School Details

Facilities

- The Physics Department has research facilities in both Tyndall and the Kane building and research and teaching space in the Kane building.
- The Tyndall facility is well resourced and provides access to world-class facilities – particularly in micro-fabrication and opto-electronics. Space is of very high quality and very much fit for purpose.
- Space in the Kane building is very well utilised; space in some laboratories appears cramped. Overall space is tight and would appear to be below the HEA norms. Much of the equipment used in undergraduate teaching laboratories is very old and some is in need of replacement. However, aging equipment is recognised as such and is very well maintained by the technical staff.
- The location of expansion space required for additional staff and their research as well as for graduate courses is not obvious.

Staffing

- The PRG notes with concern the on-going vacancies created by the recent retirement of 4.5 academic staff (one of whom was replaced by a temporary lectureship due to end in the current academic year) and the imminent retirement of one other. The current academic staffing level has reached a critical point and any further reduction will lead to a decrease in quality in teaching and research that could impact seriously on the Department's ability to deliver its current range of degree programmes. For example, the astrophysics programme will shortly rely on the expertise of two people. Any further reduction in staff numbers due to unforeseen circumstances could therefore have a grave impact on UCC as a whole.

- It is not clear to the PRG as to how the requirement for taught courses within a structured PhD framework can be met with existing staff numbers.
- The PRG also notes the negative impact of the loss of key technical staff on departmental teaching and research activity and acknowledges the flexibility shown by the technical staff in re-assigning duties so as to minimize the impact of the two recent retirements on the Department. Furthermore, the age profile of the current technical support staff is a cause for further concern, especially if those who are approaching retirement are not replaced in the current economic climate. No technical staff appointments have been made in the past thirty years. There is a danger that irreplaceable key skills will be lost.

Recommendations

1. *The PRG recommends that resources for at least 2 lectureships should be made available as a matter of urgency.*
2. *The technician staffing level is of concern due to the number and age profile and a long term recruitment and training strategy for technical support should be developed within a two year time frame.*
3. *In line with the conclusions of the SAR, the PRG is of the view that an extra 500sqm is required for research lab space, offices for new staff and to house PhD students.*
4. *A programme of gradual refurbishment of the Kane Building should be instituted as funding allows.*

Department/School Organisation & Planning

Governance

- Governance is statutorily vested in the Chair of Physics.
- The Department currently runs on a very traditional model where the Head of Department takes the majority of the governance decisions.
- The committee structures are evolving at a very slow pace since the recommendations of the 2000/2001 review. For example, the Teaching Committee is a relatively recent construct, being established two years ago in response to suggestions to improve allocation of teaching duties. The Graduate Studies and Research Committee meet online, as needed. Also, students interviewed by the panel were unaware of the staff-student and graduate student committees.
- There appears to be no student-staff council (that the student representatives were aware of) or research committee.
- As a consequence of this structure, internal departmental communications between management and staff on some issues appears to be poor and staff felt that they are not adequately involved in decision making.
- The engagement of management with the wider university to seek and secure resources was reported by senior management to be less effective for Physics than for other departments. The critical nature of the current staffing issues (relative to other Departments) was not apparent to senior management staff.

- It was clear to the panel that the Head of Department was highly committed to and passionate about the success of the Department and has many of the skills that one would normally associate with a Head of Department.
- In the core activity of providing and organising excellent teaching and organising laboratories for both Physics and service students (within the considerable constraints of limited laboratory space and limited staffing) the Department is highly organised and is doing an excellent job.
- In the core activity of providing a thriving research environment and a strong research training for postgraduates (in the face of heavy teaching loads) – the Department excels.
- The quality review of the Department of Physics in 2001 recommended that there should be a move to a rotating Head of Department, amongst other recommendations. The PRG observed that, ten years later, it is now making almost identical key recommendations. It is clear that this has been a source of frustration for virtually all academic staff in the interim period.
- It was apparent to the PRG that some of the concerns expressed by academic staff over the time it was taking to change the structural aspects of the governance were sometimes being interpreted as personal criticisms, which in turn were entrenching attitudes and opinions. This is unfortunate in what is really a very friendly and collegiate Department, where there is clearly still lots of good will. It is important to break this cycle.
- Best international practice is widely accepted to be a rotating Head of Department supported by a strong executive committee that meets regularly (e.g. every two weeks) to make collective decisions and is answerable to the entire Department. The executive committee would normally be made up of leading academics, who themselves might lead committees that would also co-opt support staff and administrative staff on issues which affect them. The PRG was very confident that there is more than enough talent and collegiality within the Department to fulfil these roles and to give collective ownership of problems and solutions.
- The PRG observes that a structure where the present Head of Department was a leading member of an executive committee, and able to offer the benefit of his considerable experience and skill set to that committee, would be one that is likely to attract confidence throughout the Department at all levels. It also has considerable potential to make the University executive more receptive to new initiatives.

Graduate Studies Committee

- The presence of a properly constituted and functioning Graduate Studies Committee as mandated by the university regulations is not evident. One of the recommendations of the Self-Assessment Report was that there should be (consistent) annual assessment of PhD students. The PRG was provided with a list of observations and recommendations from representatives of the postgraduates (most of which the PRG fully endorses). The PRG was confident that a Graduate Studies Committee would rapidly resolve these issues.

Teaching and Learning Committee

- The Teaching and Learning Committee drafts teaching allocations from year to year, however, the work of a properly constituted and functioning Teaching and Learning Committee as mandated by the University regulations is not evident.

Research Committee

- The PRG expected to see a high profile research committee responsible for informing the strategic direction of research within the department; for ensuring research quality; for optimizing the research linkages between Tyndall and the Department and for emphasising these synergies at the institutional level; and for pushing the research strategy into the University research strategy documentation.
- The absence of this committee may have contributed to the poor Research Quality Review assessment score and the low emphasis on Physics at the institutional level.

Staff-Student Liaison Committee

- The work of a properly constituted and functioning Staff-Student Liaison Committee, as mandated by the University regulations, is not evident. A recommendation was made by the 2001 quality review PRG to establish such a committee. Student representatives expressed opinions that this would be welcome. Issues raised by students were normally dealt with by the class coordinator. The Physics students the PRG spoke to were very impressive and enthusiastic about both courses and laboratory work, but raised a number of minor issues that a Staff-Student committee would be expected to resolve quickly.

Financing

- There was a concern about the overhead distribution policy in connection with Tyndall.
- The Head of Finance reported that the Department currently operates in deficit, but that it is nevertheless considered to be in relatively good health. Every additional postgraduate student housed in the Department is effectively a net cost to the Department.
- There is a strong reliance on soft-funding. This is subsidising the teaching mission *via* postgraduate demonstratorships.
- It was not clear to either the PRG or the University Finance Officer as to what sensible routes were open to increase funding given existing space and staff constraints.

Communications

- The communication between the Head of Department and staff in the department on many important issues has been poor, as recognised by all parties.

- The staff-student interaction appears to be excellent at both undergraduate and postgraduate level.
- Staff interactions appear to be strongly collegiate.

Recommendations

5. *Repeating the recommendation from the previous quality review 10 years ago, the PRG again recommends that there should be a move to a Rotating Head of the Department in Physics, supported by a strong executive group. This is simply best international practice. The PRG recommends that this issue should be explored with the existing Head and senior officers of the University.*
6. *The PRG is of the opinion that the empowerment and proper functioning of a number of key, active, committees is essential for the effective planning, organisation, management and oversight of core departmental activities. Key departmental strategic documents and policies should be prepared and reviewed by these committees, they should take responsibility for fully implementing University policy and regulations, they should consult with other staff members where appropriate and effectively communicate their decisions and reasoning to other staff members and minute their meetings. These committees should include, but not necessarily be limited to, Departmental Executive, Graduate Studies, Teaching and Learning, Research, Staff-Student Liaison. The panel notes that this will impose a significant extra administrative burden on members of staff and strongly links this to the need for new staff made in Recommendation 1.*
7. *The PRG were not at all convinced of the overall benefits of the proposed linkage with Mathematics to create a new Department. Although there was scope to share administration roles, most of the other advantages would simply come from increased collaboration and there were clear disadvantages. However, this is a complex issue and the PRG would expect a Departmental executive to further examine this question carefully.*

Teaching and Learning and Student Experience

- The PRG was impressed by the quality, enthusiasm and commitment of the undergraduate and postgraduate students. The quality of teaching was highly praised by students who appreciated both the commitment of staff to course delivery, their accessibility and their responsiveness in addressing problems identified with module delivery such as limiting the number of lecturers associated with any one module.
- Students in service courses were strongly of the view that the overall percentage of marks assigned for continuous assessment of problem sets was very low and should be increased. Students on Physics programmes also felt that the marks allocated did not reflect the effort involved
- The ‘open-door’ policy operated by staff was welcomed both by students and the PRG. While an academic co-ordinator is assigned to each year there appears to be no formal staff-student liaison committee. Currently, feedback on teaching and course content is essentially confined to completion of questionnaires at the end of each course.

- The Department has largely moved from a 10 credit to a 5 credit module structure in line with University policy and in accordance with the Bologna Process. Some teething problems have been identified and there is evidence of material being squeezed rather than pruned in at least one advanced module. There is also evidence of a lack of communication between lecturers on sequencing and content across disciplines in the case of the joint honours Physics and Maths degree programme.
- Continuous feedback to undergraduate students is of paramount importance. All the tutorials are given by postgraduate students who, it was recognised, in the main do an excellent job. However, some disparity in the grading standards and timeliness of returns of assignments was highlighted.
- The PRG welcomes the fact that Department is pursuing accreditation from the Institute of Physics (IOP) for its undergraduate Physics degree programmes.
- The PRG was impressed with both the number and quality of PhD students. The postgraduate student to staff ratio of approximately 6:1 is about twice that of any of the benchmarked institutions or indeed what is normally found nationally or internationally.
- While some generic postgraduate courses are available through Tyndall's links to INSPIRE and other national programmes for graduate course delivery many PhD students expressed the desire to have subject specific taught courses in advanced modules.
- The University regulations on PhD interim review procedures for all PhD students do not appear to be implemented consistently. While the cohort of PhD students based at Tyndall benefit from the performance review structure adopted there, no progress review appears to be undertaken with students based in the Kane building.
- All tutorials appear to be undertaken by postgraduate students who therefore play a key role in undergraduate education. While many postgraduate students were enthusiastic about the opportunity to teach, no explicit tutor training appears to have been given. Some postgraduates also appear to have a disproportionate number of effective demonstrating/tutoring/grading commitments compared to others. Demonstrators regarded problem set grading as being of little or no benefit from a career viewpoint compared to direct teaching experience.
- The Department lacks any formal postgraduate meeting forum. This problem is exacerbated by having two locations and casual access problems.

Recommendations

8. *The establishment of both a staff-student liaison committee to offer an official forum to both hear and clearly respond to UG and PG student concerns, and a teaching and learning committee to organise all aspects of teaching. The PRG endorses the following suggestions made by students:*
 - a) *Lecturers should have greater oversight over laboratory report marking to ensure consistency.*
 - b) *The possibility of increased weighting for continuous assessment for non-Physics degree students should be considered.*

- c) *The PRG endorses the postgraduates' recommendation on the provision of fora for postgraduate interactions to strengthen awareness of research activities and provide a sense of community.*
9. *There should be formal tutor training for postgraduate students, stronger recognition of their effort, and more care should be taken that individual postgraduate students are not overloaded.*
10. *The university regulations on PhD interim review procedures for all PhDs should be consistently implemented for students based both in Physics and at the Tyndall Institute.*

Research & Scholarly Activity

- The research profile of all members of staff both individually and collectively is excellent. Publications and citations are extremely impressive and remarkable given the size of the department.
- Research funding income is also excellent.
- The Research Quality Review (2009) score does not reflect what the PRG saw on the ground, and from the number of papers and citations per staff member. It is stressed that this view is both for the staff based only in the Department of Physics and the combined staff based in both the Department of Physics and the Tyndall Institute. The PRG felt that the Department was punching above its weight and is not getting the recognition it deserves.
- Although there may have been a number of contributing factors to the relatively low Research Quality Review score, the PRG heard views from a number of senior staff that preparation for the review by Physics could have been better and this view seems partially borne out by comments made in that review. However it was clear that lessons had been learnt during this process and preparation for this review has been excellent.
- Facilities at Tyndall are world-class, and the strong links with the Tyndall Institute are strongly mutually beneficial and every effort should be made to see they are strengthened. It gives many researchers in Physics access to world-class facilities and gives Tyndall access to a stream of excellent graduate students. Currently the University benefits from the student fees, whereas the Tyndall Institute benefits from the overhead component of students based at the Tyndall Institute. The PRG noted that current overhead provision does not reflect true costs in either institution.
- The number and quality and training of the PhD students per staff member is exceptional given the number of staff (and teaching burden), as compared to both national and international benchmarks. The destinations of graduating PhD students are indicative of the international reputation of the department and testament to the high quality of the training they receive at UCC.
- The contribution of the postgraduates to both research and the teaching (via laboratories and tutorials) is of critical importance in a very small research active department.

- The concentration of activity in optics related fields is both a strength and a risk. However it provides critical mass and links well with the capabilities provided by the Tyndall Institute.
- The PRG strongly agreed with the Department's suggestion that there should be multiple opportunities to collaborate with other schools and departments such as Biology and Chemistry and that this would reduce the risk of research concentration.
- Astronomy is a current research strength of the Department but the recent retirement of a senior member of staff specialising in General Relativity leaves only two staff within Astronomy/Cosmology remaining in the Department. It is important that this area is strengthened.

Recommendations

11. The establishment of a research committee to inform the strategic direction of research within the department, to ensure continuation of present level of research quality and promote national and international collaborations, to ensure that research linkages between Tyndall Institute and the Department are optimum and raise the profile of the Department both locally within UCC and further afield. In particular, the PRG recommends the committee examine:

- a) Mechanisms to increase inter-institutional collaboration to raise international profile*
- b) Mechanisms to promote and initiate inter-Departmental/Institute collaborations such as inter-Departmental research events. Linkages with Biology, Electrical Engineering and Mathematics seem particularly appropriate (as noted in the Departmental submission).*
- c) Ways to optimise and clarify the links with the Tyndall Institute vis-à-vis overheads, space, etc.*

Staff Development

The review panel was impressed with the quality and commitment of staff in the Department of Physics. Staff development is a key issue to the success of the Department and will impact on its ability to meet new challenges. Physics in UCC is currently the smallest research active Physics department in Ireland and the UK. This has implications for staff development as it clearly puts huge pressures on staff members. Current academic staffing levels have reached a critical point and the age profile and reduced number of the technical staff are also of concern. Consequent to this issue, there is severe pressure on staff time which appears to leave little or no time for staff development. It is unclear to the PRG whether a Performance Management Development System (PMDS) is being implemented. A transparent mechanism that facilitates the equitable distribution of workloads between academic staff also needs to be addressed.

Recommendations

12. A Performance Management Development System should be implemented in accordance with University policy.

13. The workloads of all staff in the Department should be reviewed immediately to take account of teaching, research and administration duties. Workloads should be monitored on an annual basis to facilitate equitable distribution.

External Relations

Ideally, any research active department should have clearly visible and excellent relationships with external stakeholders including start-up companies and multi-nationals within the region. The PRG was not convinced that the Department of Physics has achieved its potential in the development of external relations, given its achievements and importance as a core discipline. A much more proactive attitude is required in this regard. The excellent work of departmental staff needs to be communicated and highlighted effectively both within the university and outside. The external stakeholders were very positive about the importance of Physics and the quality of Physics graduates from UCC. Stakeholders commented on the poor visibility of Physics in UCC within the relevant external community. The PRG learned of a new interactive distance learning initiative. Developments of this nature are welcome in helping to enhance the external visibility of the Department. Furthermore, the PRG believes Physics should be more proactive in developing research collaborations with other groups and institutes within UCC in addition to those with the Tyndall Institute.

Recommendations

14. The Department of Physics needs to improve its external visibility. Initiatives to facilitate this objective need to be developed primarily through the roles of the Executive Group and the Research committee.

Support services

The PRG met with the VP for Teaching and Learning and the VP for Research. The PRG were impressed by the institutional support provided in these key areas. The PRG toured the Library and considers that the library facilities of UCC are excellent. The PRG was also impressed that the library carried a good selection of books and journals relevant to the Department. The PRG had the impression that communication between Library staff and the Department could be improved and were surprised to learn that the Department was not making anything like full use of its budget allocation for books. The PRG received feedback that IT services within the Department could be improved.

Implementation of recommendations for improvement made in Peer Review Group Report arising from last quality review

It is not clear that any of the recommendations (specifically the first five which are in the control of the Department) have been fully implemented in a meaningful way. These recommendations were endorsed at the time by the QPC. Indeed most of the key recommendations of this review panel are startlingly similar to the recommendations made by the review panel in 2001.

The following table gives details of actions Peer Review Group is also asked to comment specifically on developments and actions taken since the last quality review undergone by the Department/School.

	Recommendations of the PRG	Departmental Response	Comment by the QPC	Action	Report on decisions and action taken
1.	That communications within the Department should be improved.	Agreed that communications within Department and between Department and College should be improved.	Endorsed recommendation	Department	This is on-going. The operation of the committee structure in the Department has been streamlined. In practice there have been fewer staff meetings but the facility is there to have one every month if needed. Minutes of meetings and decisions taken are circulated to all staff of the Department. All committees have representatives of academic, administrative and technical support staff.
2.	That truly functioning Graduate Studies and Staff-Student Committees be established.	Agreed with recommendation.	QPC endorsed recommendation.	Department	A Graduate Studies Committee, with three members from the academic staff was established in October '01. The committee has reviewed the status of all graduate students within the Department. All applications for admission to MSc and PhD degrees are referred to the committee prior to approval. Committee has produced a postgraduate booklet for the Department. The Staff : Student Committee consists of the course directors for each year and the class representatives. This functions well and meetings are organised as necessary, with a minimum of a meeting once a term.

	Recommendations of the PRG	Departmental Response	Comment by the QPC	Action	Report on decisions and action taken
3.	That a representative departmental committee be established.	Agreed and attached copy of statute for Departmental Committee from NUIG.	QPC endorsed recommendation that a representative departmental committee be set up.	Head of Department	Implemented. The committee consists of the Head, 2 elected representatives of the academic staff, 1 elected representative of the technical staff and 1 elected representative of the administrative staff. The committee has a 2-year term of office, except for the administrative staff member who sits on the committee for one year. The departmental manager is in attendance and takes minutes. The departmental committee now considers all major resources decisions.
4.	That a system for rotation of the Headship of the Department of Physics be put in place.	Agreed. Department did not favour strict system of rotation; Head must have confidence of the staff of the Department	QPC endorsed recommendation.	Professor of Physics Dean of Science / UCC	Not yet implemented. The Professor of Physics is in the process of deciding whether and when to allow amendment of his statute, a necessary pre-condition for the rotation of the headship.
5.	That annual staff reviews be carried out.	Staff were uncertain as to precise meaning. Academic staff agreed with annual discussion of progress and prospects with Head; Technical staff proposed the re-establishment of the Technicians Review Committee within UCC. Administrative staff disagreed and recommended that all changes in conditions of employment should be re-negotiated through trade union channels.	QPC referred the recommendation to Department of HR for advice.	HR	Not fully implemented yet. Department of HR is in the process of developing guidelines for conduct of 'annual staff reviews'. A Project Officer has been appointed to assist the Department of HR in developing these guidelines. It is the intention to hold discussions with all interested parties over the 2002/03 academic year and to work with staff to develop appropriate terminology and methodology.

	Recommendations of the PRG	Departmental Response	Comment by the QPC	Action	Report on decisions and action taken
6.	That there should be improvement in laboratory and building infrastructure.	Agreed. Department were surprised that the issue of shortage of space not addressed in report.	QPC commented that the refurbishment of the Kane Building is specifically referred to in the UCC strategic plan. A detailed case with specifics and benchmarking with departments in other institutions should be made by the Department to the appropriate bodies in UCC.	Department University	A working group has been formed of three staff within the department to formulate plans for the complete refurbishment of the department in the long-term. In the short-term appropriate refurbishment of space is a major financial issue in the hiring of new academic and research staff. The Department has benchmarked itself against other Departments of Physics in Ireland, specifically with respect to student numbers, space available, quality of space, etc. The IT building project is still paused and there are increasing problems with increasing student numbers.
7.	That an in-depth review of service teaching should be carried out in consultation with the relevant departments.	Agreed and commented that this is already on-going. Staff did not agree with all statements in PRG report.	QPC endorsed recommendation.	Head of Department Dean of Science	This has happened over the academic year 2001/02. An external education consultant was employed and a number of meetings, including focus sessions with students and staff of Food Science & Technology Faculty took place, along with discussions with the course team for the Environmental Science programme and the Engineering Faculty. As a consequence of the review a programme of 4 different First Year courses have been developed with specific focus on particular needs of the different groupings (Physical & Mathematical Science, Biological Sciences, Food Science & Environmental Sciences, Engineering). This has been implemented in 2002/03 academic year (notwithstanding the 50% depletion of permanent staff of the department).
8.	That one of the vacant lectureships in the Department should be designated specifically for Astrophysics.	Staff of the Department held differing views on the issue.	QPC noted that the issue was already decided as advertisements have been made for the posts.	Department University	Has been implemented. A lecturer in Astrophysics has been appointed and has taken up the position.

	Recommendations of the PRG	Departmental Response	Comment by the QPC	Action	Report on decisions and action taken
9.	That research and teaching strategic alliances should be formed between the Department of Physics with the NMRC, CIT and the Department of Electrical & Electronic Engineering in UCC.	Supported recommendation and recommended the addition of Department of Chemistry to the list.	QPC endorsed recommendation.	Department	There are extensive connections with the NMRC and the Department of Electrical & Electronic Engineering, both teaching and research collaborations. New collaborative teaching programmes are being developed with the NMRC and with the Department of Microelectronic Engineering, e.g. MSc in Photonics. Every effort is being made to enhance such collaborations.
10.	That the UCC central management addresses the on-going issues of employment conditions and promotion prospects for technicians.	The Department did not believe that disputes between technicians and the College have any significant effect on the functioning of the Department. However a review would be welcomed.	QPC referred recommendation to the Department of HR for comment.	HR	Technician review group are developing proposals currently and had hoped to finalise them by end of year 2002. At the date of writing this report proposals had not been finalised.

Recommendation

15. The PRG recommends that Recommendations 1-6 and 8 of the previous Quality Review are further progressed and strengthened.

Recommendations for improvement made by the Department

The PRG considered the recommendations made by the Department in the SAR important and appropriate. The PRG endorses all the Department's recommendations which are summarised below.

Structural and Strategic

1. Following from the recommendations of the previous quality review, address the evolution of the department structure and leadership in the context of the new schools structures within the College of SEFS. In particular, resolve the appropriate school structure in which the discipline of physics is best served within the College.

2. Clarify the relationship between the Physics Department and the Tyndall National Institute, especially in relation to staff appointments and the roles of department and institute in regard to postgraduate student supervision.
3. Develop the engagement of Physics in other major research institutes within UCC.

Staff Appointments

4. Replace recent retirements of staff to maintain strength in key physics research areas and support skills.
5. Make additional academic appointments to support the large growth of postgraduate physics student numbers seen over the past decade.

Physical Resources and Financing

6. Allocate additional laboratory space to the department in support the appointment of new experimental physics academic staff.
7. Invest substantially in modernizing the equipment for the undergraduate laboratory programme.
8. Address the research overhead contribution to the Department from research grants based in the Tyndall Institute, for which the principal investigators are staff of Physics.

Postgraduate Supervision

9. Establish a uniform policy of annual review for all Physics PhD students.

Undergraduate Programme Coordination

10. Coordinate the delivery of topics in the various modules for undergraduate Physics majors, to ensure better continuity and coverage in the overall programme.

Summary of Recommendations for improvement made by the Peer Review Group

Recommendations for improvement that the Peer Review Group would like to make in addition to those made by the Department.

Recommendations

1. *The PRG recommends that resources for at least two lectureships should be made available as a matter of urgency.*
2. *The technician staffing level is of concern due to the number and age profile and a long term recruitment and training strategy for technical support should be developed within a two year time frame.*

3. *In line with the conclusions of the SAR, the PRG is of the view that an extra 500sqm is required for research laboratory space, offices for new staff and to house PhD students.*
4. *A programme of gradual refurbishment of the Kane Building should be instituted as funding allows.*
5. *Repeating the recommendation from the previous quality review 10 years ago, the PRG again recommends that there should be a move to a Rotating Head of the Department in Physics, supported by a strong executive group. This is best international practice. The PRG strongly recommends that this issue should be explored with the existing Head and senior officers of the University.*
6. *The PRG is of the opinion that the empowerment and proper functioning of a number of key, active, committees is essential for the effective planning, organisation, management and oversight of core departmental activities. Key departmental strategic documents and policies should be prepared and reviewed by these committees, they should take responsibility for fully implementing University policy and regulations, they should consult with other staff members where appropriate and effectively communicate their decisions and reasoning to other staff members and minute their meetings. These committees should include, but not necessarily be limited to, Departmental Executive, Graduate Studies, Teaching and Learning, Research, Staff-Student Liaison. The panel notes that this will impose a significant extra administrative burden on members of staff and strongly links this to the need for new staff made in Recommendation 1.*
7. *The PRG were not at all convinced of the overall benefits of the proposed linkage with Mathematics to create a new Department. Although there was scope to share administration roles, most of the other advantages would simply come from increased collaboration and there were clear disadvantages. However, this is a complex issue and the PRG would expect a Departmental executive to further examine this question carefully.*
8. *The establishment of both a staff-student liaison committee to offer an official forum to both hear and clearly respond to UG and PG student concerns, and a teaching and learning committee to organise all aspects of teaching. The PRG endorses the following suggestions made by students:*
 - a) *Lecturers should have greater oversight over laboratory report marking to ensure consistency.*
 - b) *The possibility of increased weighting for continuous assessment for non Physics degree students should be considered.*
 - c) *The PRG endorses the postgraduate recommendation on the provision of fora for postgraduate interactions to strengthen awareness of research activities and provide a sense of community.*
9. *There should be formal tutor training for postgraduate students, stronger recognition of their effort, and more care should be taken that individual postgraduate students are not overloaded.*
10. *The University regulations on PhD interim review procedures for all PhDs should be consistently implemented for students based both in Physics and at the Tyndall Institute.*
11. *The establishment of a research committee to inform the strategic direction of research within the department; ensure continuation of present research quality and promote*

national and international collaborations, ensure that research linkages between Tyndall and the department are optimum and raise the profile of the Department both locally within UCC and further afield. In particular, the PRG recommends the committee examine:

- a) Mechanisms to increase inter-institutional collaboration to raise international profile*
 - b) Mechanisms to promote and initiate inter-Departmental/Institute collaborations such as inter-Departmental research events. Potential linkages with Biology, (and Electrical Engineering and Maths) seem particularly appropriate as noted in the Departmental submission.*
 - c) Ways to optimise and clarify the links with the Tyndall Institute vis-à-vis overheads, space, etc.*
- 12. A Performance Management Development System should be implemented in accordance with University policy.*
 - 13. The workloads of all staff in the Department should be reviewed immediately to take account of teaching, research and administration duties. Workloads should be monitored on an annual basis to facilitate equitable distribution.*
 - 14. The Department of Physics needs to improve its external visibility. Initiatives to facilitate this objective need to be developed primarily through the roles of the Executive Group and the Research committee.*
 - 15. The PRG recommends that Recommendations 1-6 and 8 of the previous Quality Review are further progressed and strengthened.*

Appendix A

In Summary

- Monday 21 February: The Peer Review Group (PRG) arrives at the River Lee Hotel for a briefing from the Director of the Quality Promotion Unit, followed by an informal meeting with departmental staff members.
- Tuesday 22 February: The PRG considers the Self-Assessment Report and meets with departmental staff and student and stakeholder representatives. A working private dinner is held that evening for the PRG.
- Wednesday 23 February: The PRG meets with relevant officers of UCC. An exit presentation is given by the PRG to all members of the department. A working private dinner is held that evening for the PRG in order to finalise the report. This is the final evening of the review.
- Thursday 24 February: External PRG members depart.

Monday 21 February 2011		
16.00	Meeting of members of the Peer Review Group Briefing by Director of Quality Promotion Unit, Dr. Norma Ryan. Group agrees final work schedule and assignment of tasks for the following 2 days. Views are exchanged and areas to be clarified or explored are identified.	
19.00	Dinner for members of the Peer Review Group & Head of Department of Physics including the Departmental Co-ordinating Committee: Ms. Margaret Bunce, Administration Professor Stephen Fahy, Chair of the Co-ordinating Committee Professor John McInerney, Head of Department Professor Eoin O'Reilly, Tyndall Mr. John O'Riordan, Technical	
Tuesday 22 February 2011		
08.30	Convening of Peer Review Group	
08.45	Professor John McInerney, Head of Department	
09.30	Group meeting with all departmental staff	
10.30	Tea/coffee	
11.00	Private meetings with individual staff members <i>Professor John Morrison</i> <i>Dr. Graham Smith</i> <i>Professor Luan Ahma (Observer)</i>	Private meetings with individual staff members <i>Professor Nora O'Brien</i> <i>Professor Gerard O'Sullivan</i> <u>Group 2</u>

	<u>Group 1</u> 11.00: Ms. Margaret Bunce 11.15: Dr. Thomas Busch 11.30: Dr. Síle Nic Chormaic 11.45: Dr. Frank Peters 12.00: Mr. John O’Riordan 12.15: Professor Paul Callanan 12.30: Ms. Irene Horne, Ms. Karmen O’Shea	11.00: Professor Andrew Ellis 11.15: Professor Eoin O’Reilly 11.30: Dr. Denise Gabuzda 11.45: Dr. Patrick McCarthy 12.00: Dr. Andy Ruth 12.15: Mr. Robin Gillen 12.30: Professor Stephen Fahy
13.00	Working lunch	
14.00	Visit to Tyndall National Institute, escorted by Professor Eoin O’Reilly & Ms. Mary O’Regan	
15.00	<u>Representatives of 1st Year Students</u> Ms. Laura Byrnes, Biomedical Sciences Mr. Ryan Gallagher, Chemical Sciences Mr. Alexander Jaeger, Electrical Engineering Mr. Sean Knott, Physics & Astrophysics Mr. John O’Donnell, Biochemistry Ms. Siobhan Palmer, Civil Engineering Mr. Jerry Roche, Process & Chemical Engineering Mr. Patrick Xie, Energy Engineering	
15.40	<u>Representatives of 2nd, 3rd and 4th Year BSc Students</u> Mr. Kieran Brophy (Year 2, class representative) Mr. Fabien Dubois (Year 2, class representative) Ms. Alice Harte (Year 3, class representative) Ms. Katie O’Donovan (Year 3, class representative) Mr. Tim Quinlan (Year 4, class representative)	
16.20	<u>Representatives of Graduate Students</u> Mr. Miguel Caro, Theory Centre, Tyndall Mr. Ciaran Cleary, Photonic Systems Group, Tyndall Ms. Mary Frawley, Quantum Optics Group, Tyndall Mr. Dan Hurley, Astrophysics, Kane Building Mr. Tadhg Morgan, Ultra-cold gases Group, Kane Building Mr. Alan Naughton, Photonics Systems Group, Tyndall Mr. Mahdi Shirazi, Theory Centre, Tyndall	
17.00	<u>Representatives of external stakeholders, including past graduates and employers</u> Mr. Michael O’Gorman, Firecomms Mr. Frank O’Keeffe, past-graduate PhD Dr. John Buckridge, past-graduate, PhD	
19.00	Meeting of Peer Review Group to identify remaining aspects to be clarified and to finalise tasks for the following day, a followed by a working private dinner.	
Wednesday 23 February 2011		
08.30	Convening of Peer Review Group	
08.45	Professor Paul Giller, Registrar & Senior Vice-President	

09.15	Visit to UCC Library, meeting with Ms Margot Conrick, Head of Information Services and Mr. Richard Bradfield, Science Librarian, Q+1, Boole Library.
10.00	Visit to core facilities of Department, escorted by Professor John McInerney
10.40	Ms. Helen O'Donoghue, HR Business Partner Tea/coffee
11.00	<u>Senior Management :</u> Professor Anita Maguire, Vice-President for Research & Innovation Professor Grace Neville, Vice-President for Teaching and Learning
11.20	Mr. Cormac McSweeney, Finance Office
11.45	Professor Patrick Fitzpatrick, Head of College, Science, Engineering and Food Science
12.30	Working lunch
13.30	Preparation of first draft of final report
16.30	Professor John McInerney, Head of Department
17.00	Exit presentation to all staff made by the Chair of the Peer Review Group summarising the principal findings of the Peer Review Group. This presentation is <u>not</u> for discussion at this time.
19.00	Working private dinner for members of the Peer Review Group to complete drafting of report and finalisation of arrangements for completion and submission of final report.