



UNIVERSITY of LIMERICK

O L L S C O I L L U I M N I G H

Quality Review of the

Department of Civil Engineering and Materials Science

The University of Limerick (UL), through its membership of the Irish Universities Quality Board (IUQB), follows an established process for Quality Assurance (QA) and Quality Improvement (QI). This involves a seven-year cycle during which all Departments work to improve the quality of their programmes and services, undergo a rigorous self evaluation prior to a quality review by internationally recognised experts in the field.

The process itself has evolved as a result of the Universities Act, 1997 in which the responsibility for QA/QI was placed directly with the individual universities. The UL Quality Support Unit (QSU) web site provides an elaboration of this process and the state of progress.

The broader picture is described in the publication *A Framework for Quality in Irish Universities* which can be downloaded from the IUQB web site: <http://www.iuqb.ie/>

Issued by QSU	25 th October 2011
Review Date	10 th - 13 th October 2011
Quality Review Group	Appendix A
UL-QSU Web Site	www.quality.ul.ie
Web Site	www.cems.ul.ie/
IUQB Web Site	www.iuqb.ie

Copyright © – University of Limerick, January 2012

This report is the property of the University of Limerick and may be printed and distributed for personal use only. The document must not be redistributed or republished, in part or whole, without the express permission of the University of Limerick.

Table of Contents

1.0	Background	3
1.1	Legislative Framework	3
1.2	The Irish Universities Quality Board.....	3
1.3	The Quality Review Process	4
1.4	Management of Quality in the University	4
2.0	The Department of Civil Engineering and Materials Science.....	5
3.0	The Follow-up Process.....	6
4.0	Preliminary Comments of the Peer Review Group (PRG)	7
5.0	The Report of the Peer Review Group (PRG)	8
5.1	Mission.....	8
5.2	Design and Content of Curriculum	9
5.3	Teaching, Learning and Assessment.....	10
5.4	Staff	11
5.5	Facilities and Learning Resources	12
5.6	Student Guidance and Support.....	13
5.7	Research Activity	14
5.8	Department Organisation and Management	15
5.9	Quality Improvement Plan.....	16
	Appendices	17
A	Membership of the Peer Review Group:.....	17
B	Membership of the CEMS Quality Team:	17
C	Contact	17

1.0 Background

1.1 Legislative Framework

The University of Limerick, in common with all the universities in the Republic of Ireland, falls within the Universities Act, 1997. This Act specifies the responsibilities of universities in Ireland for Quality Improvement and Quality Assurance. Section 12 stipulates that, 'The objects of a university shall include - ... to promote the highest standards in, and quality of, teaching and research'.

Section 35 (1) of the Act further requires that each university Governing Authority 'shall...require the university to establish procedures for quality assurance aimed at improving the quality of education and related services provided by the university'. The Act provides a framework for the universities to develop their quality processes. Section 35 requires each university to review the quality of the work of all faculty, academic Departments and service (including administrative) Departments on a ten-year cycle. In particular 'The procedures shall include ... assessment by those, including students, availing of the teaching, research and other services provided by the university'.

Although each university is free to develop its own procedures in fulfilling its obligations under the Act, close co-operation has been achieved through the co-ordinating role of the Irish Universities Association Quality Committee, (IUQAC). Accordingly, the universities have developed a framework comprising a set of common principles and operating guidelines for quality improvement and quality assurance. These principles and guidelines have been integrated into each of the universities procedures, which ensure coherence through the university system, while maintaining the autonomy of each university and its individual institutional culture.

More detail is available at www.quality.ul.ie/The_Act.htm and www.iuqb.ie

1.2 The Irish Universities Quality Board

The Governing Authorities of the seven Irish universities established the Irish Universities Quality Board (IUQB) in February 2003. This board comprises representatives of the Conference of Heads of Irish Universities (CHIU) and a number of external members.

The aims of the IUQB are:

- To increase the level of inter-university cooperation in developing Quality Assurance processes
- To represent the Irish universities nationally and internationally on issues relating to quality assurance and quality improvement
- To articulate, on behalf of the Governing Authorities of the universities, the resource implications of recommendations for quality improvement.

The IUQB subsumed the roles and functions formerly carried out by the IUQSC (Irish Universities Quality Steering Committee). More detail is available at www.iuqb.ie

1.3 The Quality Review Process

The common framework adopted by the Irish universities for their Quality Assurance/Quality Improvement systems consistent with both the legislative requirement of the Universities Act 1997 and international practice comprise the following stages:

1. Preparation of a self-assessment report by the unit taking into account feedback from students and customers.
2. Quality (Peer) Review involving external experts, both nationally and internationally, who have visited the Department, met the students and studied the Self Assessment.
3. Quality Review Report, made publicly available by the Governing Authority of the university, incorporating the reactions and quality improvement plans of the Division and University.
4. Continuing improvement through implementation within the resources available to the university.

More detail is available at www.quality.ul.ie

1.4 Management of Quality in the University

The Vice President Academic and Registrar has overall responsibility for implementation of Quality Assurance/Quality Improvement policy and implementation at the University of Limerick. Implementation is carried out by the Director of Quality.

The planned schedule of Quality Review of both academic and support departments was commenced in the year 2000, with the first full cycle of units within the University being reviewed within a seven-year cycle.

Academic departments are reviewed against international standards as described in the document "A Guide to the Quality Review Process for Academic Departments", which is available on the UL website at www.quality.ul.ie .

In 2006, the university decided to implement a bespoke quality management system (QMS) and developed a suitable template with the assistance of external quality experts. This system is described in the document "Quality Management Systems – Standard Framework for Support Departments".

More detail is available at www.quality.ul.ie

2.0 The Department of Civil Engineering and Materials Science

The Department of Civil Engineering & Materials Science was formed in 2011 around the core faculty of the Department of Materials Science & Technology. It is one of ten departments in the Faculty of Science & Engineering which was formed in January 2008 as part of a substantive restructuring of the university. The Faculties 10 departments are as follows: Architecture, Chemical & Environmental Science, Electronic and Computer Engineering, Life Sciences, Design and Manufacturing Technology, Civil Engineering and Materials Science, Mathematics and Statistics, Mechanical, Aeronautical and Biomedical Engineering, Physics and Energy.

The Department is currently comprised of sixteen full-time academic staff, five full time and two job-sharing technical staff, and two administrative support staff. The 16 academics include three Chairs, two Associate Professors, two senior lecturers, seven lecturers (above the bar), and three lecturers (below the bar). The technical staff consists of a chief technical officer and remainder are senior technical officers.

The Department delivers the following undergraduate degree programmes;

- BSc in Biomedical and Advanced Materials (BAM) (Suspended)
- Graduate Diploma/MSc in Advanced Materials
- BSc in Wood Science and Technology (WST)
- BSc in Construction Management & Engineering (CM&E) (launched 2005)
- B.E. in Civil Engineering (CE) (launched in 2008)

The Department also participates in the BSc Energy hosted by the Department of Physics & Energy, and service teaches Materials and other modules to sister Departments across the Faculty of Science and Engineering. The Department offers postgraduate research programmes at Master and PhD level in all of its main disciplines.

3.0 The Follow-up Process

The Quality Review process occurs on an approximately seven-year cycle at the University of Limerick. An average of five academic Departments are reviewed annually. Once the Peer Review Group report is finalised, the Department concerned immediately sets about planning its response to the issues raised therein.

The self-evaluation process is intended to be a reflective exercise in which a Department/Division should identify many of its strengths and weaknesses and develop plans to strengthen and grow as appropriate. Quite often, the Peer Review Group (PRG) will reinforce these issues and may identify areas of concern that were overlooked. In many cases, the PRG will also highlight the strengths of the Department and encourage faculty and staff to take advantage of these.

After the department and the university have been given time to respond to the issues raised; the Peer Review Group's report will be made available to the wider community through the University's web site. Normally, the report is available within the University less than four weeks after the PRG visit. Responses and plans for action are incorporated into the report and are subject to the approval of the University's Governing Authority Strategic Planning and Quality Assurance Committee. Presentation to the committee usually follows within six months of the PRG visit. The Governing Authority will publish the Peer Review report, including reactions and plans, following approval.

It is expected that a review of progress in implementing recommendations and investigating issues raised would occur quarterly for the two years following the Peer Review Visit. Progress Reports will be published as deemed appropriate.

Date	Action
October 2011	Department is issued with Peer Review Group report and required to prepare reactions and plans for Quality Improvement as appropriate. The report is circulated to all members of Management Committee for comment.
January 2012	PRG Report, incorporating reactions, is presented to UL Executive Committee for discussion, as appropriate and publication.
February 2012	Reactions and plans incorporated into the Quality Improvement Action Plan and circulated to GA Strategic Planning and Quality Assurance committee. PRG Report with Responses and Quality Improvement Action Plan are tabled at GA-SPQAC meeting for discussion.
October 2012	Head of Department, Dean, Vice President Academic & Registrar and Director of Quality discuss progress with resolution of recommendations and outstanding items are referred to Executive Committee, Academic Council and/or Governing Authority as appropriate.

4.0 Preliminary Comments of the Peer Review Group (PRG)

The new name of the Department of Civil Engineering & Materials Science (CEMS), formerly known as the Department of Materials Science & Technology, was formalised in the academic year of 2010/11. The revised name is a suitable umbrella for all the CEMS degree programmes, and it reflects the department's innovative approach to engineering education and research, as well as affording the opportunity to continue with a traditional engineering research portfolio in civil engineering, management of the built environment, wood science and materials science. There were several reasons for the name change, including the organisational development arising out of recent and impending staff retirements which meant that the university focus for materials science research had moved to the Materials & Surface Science Institute (MSSI). This loss of materials expertise, particularly in research but also in teaching capacity, caused the department to rethink its function and its teaching remit. Future decisions on the filling of posts vacated as a result of retirement will be crucial in determining the future of CEMS.

CEMS had already taken the bold step of introducing programmes in Construction Management & Engineering (CME) and later in Civil Engineering (CE). In the student interest, the department took the view that the BTech (Ed) in Materials & Construction Technology (Education) second-level teacher education programme should be passed to the Department of Design & Manufacturing Technology, where it could sit alongside a sister programme. At about the same time, the decision was taken to discontinue the BSc in Biomedical & Advanced Materials programme due to low student intake. However, a strong future is envisaged for the Grad Dip/MSc in Advanced Materials developed in conjunction with other departments at UL.

The change in direction for CEMS has meant that new, enthusiastic staff have recently been appointed to support the new programmes. These new teaching staff members, along with the other academic, technical and administrative staff, are a major resource for the future, and care is needed in managing their professional development. There is also a clear indication throughout the department of the importance placed on the need to support undergraduates in their studies, and there is a strong desire to preserve entrance opportunity for those who do not yet reach the required level of mathematical competence to fully engage with CEMS programmes at admission.

CEMS has a major service function in the teaching of materials science on a number of programmes throughout the university, and it also delivers teaching of polymer science to students from other programmes. A recent development in this regard is a service teaching initiative to students of architecture by civil engineering staff. This extensive level of service teaching has the potential to be a significant source of income for the department and should be valued accordingly.

Given the changes that have taken place, it will take time for the emergence of a focused research strategy which builds on the range of expertise right across CEMS, in Materials Science, Wood Science & Technology, Civil Engineering and Construction Management & Engineering. Financial and other resources need to be made available to support the research strategy despite the current economic environment. The recent adoption of a problem-based learning approach for the Civil Engineering programme makes demands for essential studio space. A newly refurbished chemistry laboratory provides an indication of the standards aspired to by the department, and a supportive Faculty-level environment will allow other laboratory provision to be brought to the same standard as funding levels permit. As a general comment, it is important that the Faculty of Science & Engineering lay out its overall vision in an agreed strategic plan, allied to the overall University of Limerick strategic plan, with input and ownership from all member departments.

[Response of Departmental Quality Team:](#)

5.0 The Report of the Peer Review Group (PRG)

5.1 Mission

Commendations

The PRG commends the following:

- 5.1.1 The combination of Materials Science with Civil Engineering to give opportunities in both teaching and research.

- 5.1.2 The involvement of the whole department team in the development of its mission statement to provide a focal point for further progress.

- 5.1.3 The initiative of the Civil Engineering (CE) staff in their use of promotional videos and modern communication methods (such as the 'Civil@UL' branding) to highlight the unique selling points of the CE courses.

- 5.1.4 The acknowledgement of the necessity for strategic change, so that the department can continue to develop and expand its range of undergraduate, postgraduate courses and postgraduate research.

Recommendations

The PRG recommends the following:

- 5.1.5 Develop the mission statement into a series of clear tangible short-term goals to build on the progress made.

- 5.1.6 Develop an agreed departmental strategic plan that reflects the mission statement and aligns with the strategic plans of the Faculty of Science & Engineering and the University of Limerick.

- 5.1.7 Expand the CE communication initiative to promote the Materials Science and Wood Science & Technology portfolios, such as developing a 'Materials@UL'-type branding.

- 5.1.8 Develop a research policy for the department as a whole.

- 5.1.9 Identify how mathematical standards can be maintained if, and when, the barriers to entry are removed.

- 5.1.10 Promote the effectiveness and efficiency of service teaching provided by CEMS.

5.2 Design and Content of Curriculum

Commendations

The PRG commends the following:

- 5.2.1 The willingness of the staff to be accessible to students and to consider their views on programme content.

- 5.2.2 The development of a problem-based learning (PBL) approach to programme delivery, enthusiastically supported by both staff and students.

- 5.2.3 The delivery of certain programme elements by external industry practitioners, which brings a sense of the 'real world' to the student learning experience and helps provide a holistic approach.

- 5.2.4 The development of an ethos in which students exhibit enthusiasm for their programmes and become active and engaged learners.

- 5.2.5 The Department's initiative in developing an entry route for applicants with different levels of mathematical attainment.

- 5.2.6 The introduction of the postgraduate programme in Advanced Materials.

Recommendations

The PRG recommends the following:

- 5.2.7 At UL level, review and simplify the procedures to implement programme changes which have a purely localised effect.

- 5.2.8 Urgently address at UL level the needs of the department, particularly in relation to PBL, by providing dedicated space for the delivery of its teaching portfolio.

- 5.2.9 Continue to develop, in conjunction with the Kemmy Business School, ideas on entrepreneurship/enterprise and extend this to all programmes.

- 5.2.10 Construct a map of student skills development to avoid duplication and perhaps free up staff time for career development.

- 5.2.11 Consider offering student elective modules in all programmes.

5.3 Teaching, Learning and Assessment

Commendations

The PRG commends the following:

- | | |
|-------|---|
| 5.3.1 | The timely provision of formative feedback to students and access by students to reviewer comments in the case of summative work. |
| 5.3.2 | The clear evidence of consideration given to different learning styles and the organisation of programme delivery and assessment with this in mind. |
| 5.3.3 | The research that has led to the adoption of alternative teaching methods and associated assessment. |
| 5.3.4 | The level of engagement by staff in training courses and their use of the virtual learning environment, SULIS. |
| 5.3.5 | The valuable experience gained by undergraduate students through their participation in the well-organised Co-op system. |

Recommendations

The PRG recommends the following:

- | | |
|--------|---|
| 5.3.6 | Establish a student/staff consultative committee with a view to improving the student educational experience. |
| 5.3.7 | Review at UL level the design of the student feedback questionnaires and the methods of data collection, in order to improve the response rate and the quality of the information gained. |
| 5.3.8 | At UL level, sponsor staff to obtain a teaching qualification. |
| 5.3.9 | Bring in a mandatory teaching quality evaluation and enhancement process for all staff. |
| 5.3.10 | Provide students with information on assessment <i>prior to</i> the start of a module. |

5.4 Staff

Commendations

The PRG commends the following:

- | | |
|-------|--|
| 5.4.1 | The support given to new academic staff by the department, including mentoring in respect of teaching duties. |
| 5.4.2 | The willingness of staff to engage in teaching performance evaluation by a variety of means. |
| 5.4.3 | The intent within the department to enable sabbatical opportunities. |
| 5.4.4 | The existence of the Performance and Development Review System (PDRS), which provides an established faculty/staff appraisal and development tool. |

Recommendations

The PRG recommends the following:

- | | |
|-------|---|
| 5.4.5 | Develop a succession plan covering anticipated retirements and their consequences for the future profile of the department. |
| 5.4.6 | Restore the PDRS system for all staff. |
| 5.4.7 | Introduce a formal training/mentoring programme for new academic staff, to cover both teaching and research. |
| 5.4.8 | Record the evidence that appropriate response to teaching performance evaluation is made. |
| 5.4.9 | When opportunities arise, encourage and support sabbatical leave, possibly of shorter duration than one full year. |

5.5 Facilities and Learning Resources

Commendations

The PRG commends the following:

- 5.5.1 The excellent utilisation by CEMS of the resources available to it, in particular its use and support of the undergraduate laboratories.

- 5.5.2 The department's effective use of open-plan studio space and its aspiration for further space refurbishment to meet the needs of its PBL approach.

- 5.5.3 The department's desire for a permanent dedicated space to enable CEMS students to develop a sense of community.

- 5.5.4 The thorough selection process adopted by the Department in identifying books relevant to its programmes.

Recommendations

The PRG recommends the following:

- 5.5.5 Adopt at UL level an inclusive and consultative process for the allocation of space and associated resources.

- 5.5.6 Set up a mechanism to examine departmental space requirements on a regular basis and engage with Faculty and University space management systems.

- 5.5.7 Prepare a prioritised list of equipment needs with brief justification and written quotes to enable rapid response when funding is available.

5.6 Student Guidance and Support

Commendations

The PRG commends the following:

5.6.1 UL's high standard of provision of formal student services and support.

5.6.2 The CEMS departmental culture of informal contact between students and staff which results in a constant exchange of information and views.

5.6.3 The progress made by Student Affairs in its aim to assign academic advisers in advance of the student arrival.

5.6.4 The department's requirement that advisers first meet their advisees during the students' initial three weeks at UL.

Recommendations

The PRG recommends the following:

5.6.5 Ensure that the process for appointing advisers in advance of the academic year is in place.

5.6.6 Continue with efforts to ensure that students meet their advisers within the first three weeks of the academic year.

5.6.7 Ensure that students are aware of the value of the adviser system.

5.6.8 Support Student Affairs in its intention to have an effective Student Advisory Committee.

5.7 Research Activity

Commendations

The PRG commends the following:

5.7.1 The maintenance of a strong programme of research in Materials Science.

5.7.2 The department's recognition of the need for a research strategy.

5.7.3 The intention of the department to increase research activity in Civil Engineering, Construction Management & Engineering and Wood Science & Technology.

5.7.4 The awareness in CEMS of potential research opportunities in engineering pedagogy.

Recommendations

The PRG recommends the following:

5.7.5 Set up an Industrial Advisory Board with an external Chair and membership drawn from CEMS and industry, with the board's terms of reference to include advising the department on teaching and research matters.

5.7.6 Hold an away day to develop a research strategy that is owned by the whole department, write a business plan to implement the strategy and set up a research committee to monitor its delivery.

5.7.7 At UL level, provide start-up funding to support newly appointed academic staff in their research careers.

5.7.8 At UL level, support academics without a PhD to begin the doctorate process in order to strengthen further the research culture across the university.

5.7.9 Organise a forum for all UL staff who are teaching and researching Materials Science in order to increase awareness of the strategic directions of the departments, centres and institutes involved.

5.8 Department Organisation and Management

Commendations

The PRG commends the following:

- 5.8.1 The quality improvement and enhancement initiatives that are underway across the department.

- 5.8.2 The willingness of the department to embrace the current quality review process.

Recommendations

The PRG recommends the following:

- 5.8.3 Document the quality assurance procedures within the department.

- 5.8.4 Review the European Standards and Guidelines (ESG) and address how the department's QA processes currently meet these guidelines, identifying areas where improvement is required for compatibility with the ESG.

- 5.8.5 Establish a process and schedule for annual internal programme monitoring and for external review on a five-year cycle.

- 5.8.6 Ensure that the department's activities and plans align with the Quality theme in UL's current strategic plan.

5.9 Quality Improvement Plan

Commendations

The PRG commends the following:

- | | |
|-------|--|
| 5.9.1 | The reflective and constructive nature of the consideration given to areas for development identified in the self-assessment report (SAR). |
| 5.9.2 | The realistic actions identified to address quality improvement and enhancement issues across all areas of the department. |
| 5.9.3 | The involvement of all staff, led by the head of department, in the identification of areas for development. |
| 5.9.4 | The particular focus on issues relating to the student academic experience and developments within individual programmes. |
| 5.9.5 | The strong focus on the necessity for strategic and action plans in research activity. |

Recommendations

The PRG recommends the following:

- | | |
|-------|---|
| 5.9.6 | Ensure that the entire department is involved in the development and execution of the quality improvement action plan in response to this PRG report. |
| 5.9.7 | Prioritise the areas for development that were identified in the SAR and identify action plans that include SMART (specific, measurable, attainable, realistic and timely) goals. |
| 5.9.8 | Align the areas for development that were identified in the SAR with the responses to the recommendations provided in the PRG report. |
| 5.9.9 | Identify mechanisms to adequately distribute the departmental management and administrative responsibilities. |

Appendices

A Membership of the Peer Review Group:

Kimball Beasely,	Senior Principal, Wiss, Janey, Elstner Associates Inc, NJ, USA
Michael Greaney	Professional Engineer, Cork
Dr. Sarah Ingle	Director of Quality Promotion, DCU.
Dr Harold Johnston	Director of Education, School of Planning, Architecture and Civil Engineering, QUB, NI.
Professor Bill Lee	Chair in Ceramic Engineering, Imperial College, London, UK.
Ms Ailish O'Farrell (Recording Secretary)	Technical writer, Limerick.
Professor Nigel Steele (Chair)	Emeritus Professor of Mathematics, Coventry University, UK

B Membership of the CEMS Quality Team:

Mr Nigel Coleman	Chief Technical Officer – Facilities
Dr. Colm Cryan	Course Director Construction Management & Engineering (CM&E)
Ms Grainne Geary	Dept Coordinator/Administrator
Mr Gerry Higgins	Quality Systems
Prof Conleth D Hussey	Head of Department
Mr Conor Mooney	Chairman and Manager of the Quality Team
Dr. Declan Phillips	Course Director Civil Engineering (CE)
Prof Mike Pomeroy	Research
Dr. Murt Redington	Course Director Wood Science & Technology (WST)
Dr Jeremy Robinson	Course Director Biomedical & Advanced Materials (BAM)

C Contact

The Peer Review Group were given the opportunity over three days to talk to the department Quality Team both formally and informally. Meetings with staff, postgraduate & undergraduate students and others were scheduled as group sessions. The Review Group was given the opportunity to meet all staff during a visit to the facilities of the department and this was most helpful.

All the meetings provided extremely useful additional information to support the SAR.

