Department of Microelectronic Engineering

Peer Review Group
>Professor M. Mansfield, Department of Physics, UCC (Chair)
>Ms. K. Neville, Dental School & Hospital, UCC (Rapporteur)
>Mr. T. O'Dwyer, Analog Devices, Limerick, Ireland
>Professor G. Gielen, Department Elektrontechniek, K.U. Leuven-ESAT/MICAS, Belgium

Brief Description of conduct of site visit
The site visit was conducted over 2.5 days from 29th February – 2nd March 2004 and included meetings with
- i) Head and staff of the department as a group and individually
- ii) Representatives of undergraduate and postgraduate students
- iii) Representatives of employers, past graduates and other external stakeholders
- iv) Professor M. Aidan Moran, Registrar & Vice-President for Academic Affairs
- v) Mr. Michael O'Sullivan, Vice-President for Planning, Communications & Development
- vi) Professor Patrick Murphy, Department of Electrical & electronic Engineering
- vii) Mr. Michael Kelleher, Secretary & Bursar/Vice-President for Administration & Finance
- viii) Professor J. Kevin Collins, Vice-President for Research Policy & Support
- ix) Professor Gabriel Crean, Director, NMRC
- x) Ms. Margot Conrick, Head, Information Services, UCC Library

and visits to departmental facilities in UCC.

An exit presentation of the principal findings of the Peer Review Group was made to staff of the department in the afternoon of the second day.

Description of Department of Microelectronic Engineering

Head of Department: Professor M. Peter Kennedy
No. of Staff: 3 academic, 1 technical, 1 administrative. In addition, staff of the NMRC serve as part-time staff on specific courses
Location of Department: Enterprise Centre, North Mall
Degrees/Diplomas offered: BE, MEng, PhD
No. of Students: Department has 98 Student FTEs: 41 UG and 57 PG FTEs distributed as follows:

Year 1	Year 2	Year 3	Year 4	Total U/G	H Dip	Master Taught	PhD	Total P/G
1	8	21	11	**41**	3	21	33	**57**

Mission Statement
>"The mission of the Department of Microelectronic Engineering is to deliver excellence in Microelectronic Circuit Design and Technology: excellence in education and excellence in research."

General Comment on Quality Review

The Self-Assessment Report presented by the Department was comprehensive and well organised. Issues were addressed in a concise but considered manner. The reviewers noted

that it would have been helpful to clarify the position of the associate professor and of NMRC staff who are responsible for a number of modules but are not listed under the staff of the Department. A curriculum vitae for the associate professor in the Department, and summary CVs for the part-time staff used by the Department could have been included. This would be important in the context of the Department's request for additional staff. The reviewers also requested unit cost figures for the undergraduate programme to establish a baseline, and for comparison to like programmes at the College, and national norms. Reference to the accreditation plans, if any, for example by the Institution of Engineers of Ireland of the undergraduate programme should have been included. The plan would have been sufficient, since the PRG understood that this accreditation cannot commence until the first graduates are produced.

In addition, the information provided on benchmarking against comparable departments elsewhere was not sufficiently detailed.

However, much of the above information, in particular a comprehensive safety statement, was presented during the visit.

The PRG was satisfied with the information presented in the report and verified the information with internal and external staff members during the site visit.

The reviewers were satisfied that the analysis presented by the Department showed that the issues affecting their current situation and future development had been addressed. The SWOT analysis showed that the Department had conducted an accurate assessment of the strengths of its activities and had identified future actions.

However, the reviewers would have expected one central threat to the Department to be addressed, namely the low numbers of students opting for the undergraduate programme. In spite of the Department making considerable efforts to attract such students the numbers have remained low. (This issue is a national problem at present due to the negative image of information technology among school leavers and not confined to this Department alone.) The potential confusion and difficulty for leaving certificate students having to choose between the (initially quite similar) undergraduate programmes of Microelectronic Engineering and Electrical & Electronic Engineering at the College may also have contributed to the low numbers.

The reviewers also noted that the research programs (Master and Doctorate) seem successful in attracting students.

Progress on Implementation of Recommendations for Improvement

A meeting to discuss progress made in implementing recommendations for improvement arising from the review of the Department of Microelectronic Engineering was held on 23rd January 2006.

Present: Dr. Sverre Lidholm, Head, Department of Microelectronic Engineering
                Dr. Richard Kavanagh, Acting Dean, Faculty of Engineering
                Professor Patrick Fitzpatrick, Acting Head, College of Science, Engineering
                   & Food Science
                Dr. Norma Ryan, Director of Quality Promotion

Abbreviations
  PRG: Peer Review Group   *EMG: Executive Management Group*
  QPC: Quality Promotion Committee   *HR: Human Resources*

Recommendation of PRG	Recommendation of QPC	Follow-up Report January '06
Integration of the Microelectronic Engineering undergraduate course with that of the Department of Electrical & Electronic Engineering, with a common entry point and a joint programme in the first few years but with Microelectronics as one of the specialisation streams towards the later years. The integration of these programmes should be arranged so as to take account of the Bologna agreement. (*Note issues highlighted on page 13 of PRG Report)*	Endorsed by QPC. The QPC welcomed action to be taken by the Department	Implemented. A common entry and curriculum of first two years of the Electrical/Electronic/Microelectronic Engineering undergraduate programme was agreed in June 2004. the intake into this common programme has now commenced. Streams for final year is under discussion
That the Department consider coordination of task deadlines across modules to provide better balance of the student workload.	Strongly endorsed by QPC. QPC welcomed action to be taken by Department.	Implemented The departmental EA maintains up-to-date information on the departmental web site, emails all concerned of arrangements and deadlines, and the Student:Staff Committee also monitors developments and progress.
That better notice of changes in teaching times should be given to part time lecturers.	Endorsed by QPC.	Implemented
That additional training in teaching is required for part time teachers.	Endorsed by QPC.	On-going. As part of the developments a training proposal has been submitted to the Quality Improvement Fund 2005.
Suggested that the Department of Microelectronic Engineering become a graduate school, maintaining at the minimum its present shape and staffing which concentrates on the postgraduate programmes and research, but which also provides education services in the undergraduate programme	QPC endorsed the sentiments expressed concerning the quality of the postgraduate programmes offered by the Department. The QPC endorsed in particular the suggestion that a graduate School be established that would incorporate all interested areas including Microelectronic Engineering, Electrical &	Ongoing. This is under discussion in terms with the new academic re-structuring of the University Of the 34 new postgraduates starting in 2005/2065, half are supervised by the 3 academics in the Department and half by researchers in the Tyndall.

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for the microelectronics course modules and specialisation stream.	Electronic Engineering, Photonics, ICT and the NMRC.	
That the Department should further develop its research plan, based on individual strengths and the needs of industry.	Endorsed by QPC.	Ongoing.
That there should be more structured opportunities for postgraduate students to present their work to their contemporaries.	Endorsed by QPC. Departmental action noted and welcomed.	Implemented.
That the Department should establish a staff-student committee.	Endorsed by QPC.	Implemented. Committee meets once per month and reports back to both staff and students
That, in the absence of access to a Measurement Laboratory containing automatic test equipment, some form of agreed access should be arranged with the facility currently existing in the NMRC.	Endorsed by QPC. The QPC requested that the Department keep the QPC informed of progress on implementation of this recommendation	Implemented. Implemented by Tyndall NAP (National Access Facility) funded by SFI.
That the College review its offer to potential overseas students policy with a view to overcoming the delay in issuing acceptance to overseas students well in advance of the start of the programme, so that visa requirements can be fulfilled, and consider provision of temporary accommodation for a ten-day period on campus for new international students to give them time to organise more permanent accommodation.	The QPC noted that the University has already taken a number of actions with a view to overcoming delays in notifying acceptance to applications from overseas students. The issue of student accommodation has been addressed by the university over the past eighteen months. The QPC suggested that the Department liaise with the Accommodations Officer in UCC in relation to provision of accommodation, as the overall situation is now very significantly improved. The QPC noted that all matters	Implemented and on-going. Department processes applications for taught programmes within 2 weeks; and for research programmes within 12 weeks. Departmental EA follows up with Admission Office on each application to guarantee responses to students within 4 and 14 weeks respectively. The system is now working well for applications to taught programmes. Improvements still need to be made at the level of research programmes. UCC has improved its systems with the assignment of responsibility to the International Education Office.

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	relating to the admissions of overseas students are now dealt with by the International Education Office and the Department should follow-up any areas of concern with that office.	The issue of student accommodation has been addressed comprehensively by the University.
That the location of the Department be considered with a view to locating the Department of Microelectronic Engineering in a more integrated setting, which would allow the Department and its students to benefit from full interaction with cognate Departments and Research Centres, specifically Computer Science, Electrical & Electronic Engineering and the NMRC.	Endorsed by the QPC. The QPC noted that decisions have already been taken by the University in relation to the location of the Department in a more integrated setting and that definite actions are being planned in this regard.	This issue will be under consideration within the framework of the new academic structures being developed in the University.
That the Department form a core group in the new ICT centre (in the area of circuit design and CAD).	Endorsed by QPC.	This issue will be under consideration within the framework of the new academic structures being developed in the University.
That financial data for the Department of Microelectronic Engineering and the NMRC be completely separated to enable accurate measurement of Departmental costs and to track improvement over the coming years.	The QPC recommended that this issue be brought to the attention of the Deans-F for a decision.	Implemented. The financial data will become very transparent when the new Resource Allocation Model is implemented in October 2006.
That a mechanism be found whereby the financial deficit of the Department, created at time of start-up and due to the lack of funding from the Engineering Faculty, be eventually written off.	The QPC recommended that this issue be brought to the attention of the Deans-EMG for a decision.	Implemented. The financial deficit was written off in September 2004 and is no longer charged against the Department.
That a reliable high-bandwidth link to the main cognate groups: Electrical & Electronic Engineering,	The QPC noted that the situation has been improved, although is not yet perfect. It was further noted that provision	Implemented. A high-bandwidth radio link has been established.

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Computer Science, and the NMRC as well as to the main campus, be installed.	of such a link of high quality is a priority of a Computer Centre and of the University.	
That the library should cater to the needs of the Department. Access to IEEE Explore is essential and the PRG feels strongly that this should be arranged as a matter of priority.	The QPC noted this recommendation and suggested that the Dean of the Faculty of Engineering write to the UCC Librarian about the possibility of access to funding which has been promised from SFI to the universities.	Implemented. thanks to SFI/HEA national agreement