

Quality Assurance / Quality Improvement
Programme for Academic Units
2004-2005



Peer Review Group Report
for the
School of Mechanical &
Manufacturing Engineering

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Introduction

This Quality review has been conducted in accordance with a framework model developed and agreed through the Irish Universities Quality Board (IUQB) and which complies with the provisions of Section 35 of the Universities Act (1997). The model consists of a number of basic steps.

1. An internal team in the School being reviewed completes a detailed self-assessment report (SAR). It should be noted that this document is confidential to the School and to the Review Panel and to senior officers of the University
 2. This report is sent to a team of peer assessors, the Peer Review Group (PRG) – composed of members from outside DCU and from other areas of DCU – who then visit the School and conduct discussions with a range of staff, students and other stakeholders.
 3. The PRG then writes its own report
 4. The School produces a response (in consultation with the Dean of the Faculty), in response to the various issues and findings of the SAR and PRG Reports.
 5. The PRG Report and the School response are then considered at a follow-up meeting, chaired by the Director of Quality Promotion and attended by an external (if possible) member of the original Peer Review Group, the Head of School (and another representative from the School), Dean of the Faculty and the Deputy President, Registrar and Vice-President for Research (on behalf of Senior Management), who address recommendations in the Peer Review Group Report, that fall outside the control of the School or that require additional resources. Arising from this meeting, School, Faculty and University-based action plans are approved. Together, these are termed the Quality Improvement Plan (QulP)
 6. A summary of the Quality Review is sent to the Governing Authority of the University, who may approve publication in a manner that they see fit. Following the approval of the summary report by the Governing Authority, it is published on the University website. The full text of the Peer Review Group Report and the Quality Improvement Plan is also published on the Quality Promotion Unit website.
- **This document is the report referred to in Step 3 above..**

1. Profile of the School

Location of the School

The School occupies 3,687m² space (82 labs/rooms/offices) in the new Engineering Building. Most undergraduate laboratories are reasonably well equipped, although some labs still lack proper equipment. There are four computer rooms with a total of 150 personal computers. In addition, each staff member and research student has their own PC. The School has its own local area networks (one for students and one for staff).

Most research labs are outside the Engineering Building

Staff

Academic staff	permanent	15
	on contract	2
Technical staff	permanent	10
Administrative staff	permanent	1
Research staff	permanent	1
	on contract	2

Programmes/Outputs

The BEng in Mechatronic Engineering, started jointly with the School of Electronic Engineering in 1996 was the School's first undergraduate programme. Three other undergraduate programmes, BEng in Computer Aided Mechanical and Manufacturing Engineering (CAM, recently renamed to BEng in Mechanical and Manufacturing Engineering), BEng in Manufacturing Engineering with Business (BME) and BEng in Medical Mechanical Engineering (MEDM), started in 1999. The Graduate Diploma/MSc in Computer Aided Mechanical and Manufacturing Engineering (CAMME) was first offered in February 2002.

The Materials Processing Research Centre (MPRC), which is the largest research group in the School, was formed in 1990. Several staff members are involved in the National Centre for Plasma Science and Research (NCPST) and the National Sensors Research Centre (NSRC).

Undergraduate enrolment (Total/School share)

PROGRAMMES	YEARS				Total FTE
	1	2	3	4	
B.Eng. Manufacturing Eng. with Business Studies (82% School involvement)	8	13	12	6	39 (32)
B.Eng. Mechanical & Manufacturing Engineering	10	15	20	7	52
B.Eng. Medical Mechanical Engineering (82% School involvement)	10	19	14	10	53 (43)
B.Eng. in Mechatronic Engineering (50% School involvement)	16	22	25	44	107 (54)
Common Entry to Engineering (1 year)	13				13
TOTAL:	57	69	71	67	254 (192)

Taught Postgraduate enrolment

Programme (one year duration FT, Continuous)	Students
GDip in Computer Aided Mechanical & Manufacturing Eng	10
MSc. in Computer Aided Mechanical & Manufacturing Eng	27
Access Course to GD/MSc. in Computer Aided Mechanical & Manufacturing Eng	08

Research Postgraduate enrolment

Programme	Students
MEng	59
PhD	20
Total:	79

2. The Self-Assessment Process

The Co-ordinating Committee

Dr. Tamas Szecsi, senior lecturer (Chair)
 Mr. Liam Domican, senior technician
 Ms. Kathleen Donohoe, school secretary
 Dr. Triona Lally, lecturer
 Mr. Cian Merne, workshop technician
 Ms. Marie Ryan, senior faculty administrator assistant
 Dr. Joseph Stokes, lecturer

Methodology Adopted

The Self-Assessment Co-ordinating Committee (SACC) was formed on 7 May 2004. Its members include representatives of all major groups of staff in the School: senior and junior academic staff, lab technician, workshop technician, School secretary and staff from the Faculty office. It was decided to only include staff members and the opinion of students would be sought through surveys and informal conversations. The responsibilities of each SACC member were defined at a meeting held on 7 October 2004:

Tamas Szecsi

- ◆ General co-ordination of the review and report
- ◆ School management, strategies, planning
- ◆ Evaluation, SWOT analysis
- ◆ Postgraduate taught programmes

Joe Stokes

- ◆ Staff and postgraduate research
- ◆ Community services
- ◆ External activities

Triona Lally

- ◆ Undergraduate teaching
- ◆ Service teaching, short courses

Liam Domican

- ◆ Teaching and research technical support
- ◆ School assets
- ◆ Safety issues

Cian Merne

- ◆ Teaching and research workshop support
- ◆ Workshop assets

Marie Ryan

- ◆ Faculty administration, link with School
- ◆ Faculty databases, documentation
- ◆ Statistics

Kathleen Donohoe

- ◆ School administration
- ◆ School databases, documentation
- ◆ Minutes
- ◆ Organisation

In the period October 2004 – January 2005 regular meetings of the SACC were held at least every two weeks.

On 1 December 2004, a structured discussion with Year 4 students was performed by an external expert Prof. James Wisdom. Students expressed their opinion concerning the relevance of the programmes and the quality of teaching. The report of the meeting was circulated to staff.

After forming the SACC, staff not on the committee were informed about the responsibilities of the SACC members.

A detailed questionnaire concerning individual staff details and activities was sent to all staff members. The answers were then analysed by the corresponding SACC members and incorporated into this Report.

Several draft Reports were made available to all staff members for comments.

In January 2005, two 'away-days' were organised to discuss the self-assessment report. Almost all staff members of the School, and two Faculty admin staff attended. Small discussion groups were formed and results were recorded and incorporated into this report.

3. The Peer Review Group Process

Overall Comments on the Visit

The Quality Promotion Unit provided the Peer Review Group with appropriate information both before and during the visit. Both the self-assessment report prepared by the School and the initial briefing session by the Director of the Quality Promotion Unit were very useful in helping the PRG to focus on the important points to be considered in the report. The PRG asked for some extra information covering External Examiner Reports, Exam Papers and samples of project work. These were all provided immediately.

The PRG felt that the initial timetable provided was somewhat rigid and a number of changes were suggested. These were readily agreed to.

Site Visit Programme

Day 1 (Wednesday 2 March 2005)

14.00 – 15.00	Meeting of members of the Peer Review Group and briefing by Director of Quality Promotion.
16.00 – 17.30	Consideration of Self-Assessment Report with School Quality Committee.
19.30	Dinner for members of the Peer Review Group, Head of School and Unit Quality Co-ordinating Committee

Day 2 (Thursday, 3 March 2005)

09.00 – 11.00	Further consideration of Self-Assessment Report and other inputs from other School and Faculty staff.
11.00 – 11.45	Meeting with Dean of Faculty
12.00 – 13.00	Visit to core facilities of School – (1)
14.00 - 17.00	Meetings with representative selections of Students and Recent Graduates
18.00 – 19.00	Meeting with Head of School to clarify any outstanding issues
20.00	Working private dinner for members of the Peer Review Group

Day 3 (Friday, 4 March 2005)

09.00 – 09.45	Meeting with President, Deputy-President, Registrar, Secretary, Director of Finance and Director of Human Resources (Director of Quality Promotion in attendance)
10.00 – 10.30	Meeting with Vice-President for Research
10.30 – 11.30	Visit to core facilities of School – (2)
11.30 – 12.00	Meeting with Technical Staff.
12.00 – 12.30	Meeting with Head of School to clarify any outstanding issues
12.30 – 16.00	Working lunch for members of Peer Review Group and Preparation of 1 st Draft of Final Report
16.00 – 16.30	Exit presentation to <u>ALL</u> staff of the School to be made by the Chair of the Peer Review Group summarising the principal findings of the Peer Review Group

Methodology

The Review process consisted of three distinct activities.

1. Familiarisation with the self-assessment report prior to the visit.
2. The site visit itself. Its main purpose is to review and validate the main points of the self-assessment report by interviewing relevant stakeholders and by inspecting and evaluating the research. The PRG chair conducted all the meetings and invited other members to ask questions if they wished
3. The writing and editing of the present review report which summarises the main findings of the PRG and makes recommendations for future developments.

Overview of the Site Visit

The PRG was impressed by the openness and quality of responses from all the parties it met.

The Review Group met initially with the Director of the Quality Promotion Unit for a briefing session. This was followed by a meeting with the Self-Assessment Co-ordinating Committee. after which there was a brief meeting of the Review Group itself at which the visit was discussed in outline. An evening meal with members of

the Review Group and the Quality Review Committee followed. Requests were made for some extra data and for minor changes to the site visit timetable.

The second day started with a review of the work to be done by the Review Group. Key questions were identified and overall responsibility for sections of the report were assigned by the chair. This was followed by meetings with the following people:

Dr Tamas Szecsi
Dr Paul Young
Dr Triona Lally
Dr Lisa Looney
Mr Liam Domican
Mr Cian Merne

Issues ranging across the three areas of Teaching and Learning, Scholarship and Research and School Organisation and Management were discussed. The PRG also met Professor Charles McCorkerel, Dean of the Faculty.

The Review Group was then given a tour of the core facilities in the Engineering building.

The tour was followed by lunch and a meeting with the Director of the Quality Promotion Unit.

After lunch, the Review Group met students. It first met with six students covering the first two years of the various undergraduate programmes. This was followed by a meeting with representatives of years three and four of the undergraduate programmes. The PRG then met with postgraduate students. Representatives of taught postgraduate programmes were followed by research postgraduates covering both MEng and PhD studies. Finally, the group met four recent graduates. Unfortunately, no employers were available to meet the Review Group.

The evening's meetings concluded with a meeting with Professor Saleem Hashmi, Head of School at which some of the issues that had emerged during the day were clarified. This was followed by a meeting of the PRG where key issues were captured and questions were formulated for meetings on the following day. The day concluded with a dinner attended by the Review Group.

The third day started with a meeting between the PRG and senior management of the University : President, Deputy President, Vice-President for Learning Innovation (Registrar), Secretary, Director of Finance and attended by the Director of Quality. This was followed by a meeting with the Vice-President for Research. The morning concluded with a tour of the school's research facilities (Albert College, J Building).

The Review Group then had a working lunch at which the main findings of the visit were discussed. Finally, the Review Group met with the staff of the School and the chair of the Review Group gave a presentation on the main findings of the Group.

Review Group's view of the Self-Assessment Report

Overall, the Review Group considered the Self-Assessment Report to be a highly detailed document which had clearly taken a huge amount of time and effort to put together. Excluding Appendices, the Self-Assessment Report amounted to over 100 pages. The PRG found the self-assessment report to accurately represent all aspects of the work carried out by the School, including a good analysis of its

strengths and weaknesses. The PRG requested some extra information which the School provided without reserve.

Report Methodology

.At its first meeting each member of the PRG decided to concentrate on particular aspects of the assessment process.

- Professor Alan Bramley (Chair): Programmes and Instruction
- Mr Jim Lawler: Management and Organisation of the School
- Professor Sean McNamara: Staffing, Accommodation and Resources
- Professor Richard O'Kennedy: Research and Scholarship
- Dr Anne Sinnott (Rapporteur) All above topics; Minutes/Note taking

Writing of the final report was undertaken as follows: the initial sections were written by the rapporteur while all PRG members contributed to Sections 4 and 5 concentrating broadly on the issues listed above. The main sources of information used to produce the report were the School self-assessment report and notes taken during the visit.

4. Findings of the Review Group

Background and Context

The School of Mechanical and Manufacturing Engineering at Dublin City University (then NIHE, Dublin) was established in 1987. The first undergraduate programme, BEng in Mechatronic Engineering, started jointly with the School of Electronic Engineering in 1996. Three other undergraduate programmes, BEng in Computer Aided Mechanical and Manufacturing Engineering (CAM, recently renamed to BEng in Mechanical and Manufacturing Engineering), BEng in Manufacturing Engineering with Business (BME) and BEng in Medical Mechanical Engineering (MEDM), started in 1999.

The Graduate Diploma/MSc in Computer Aided Mechanical and Manufacturing Engineering (CAMME) was first offered in February 2002.

The School has an impressive total of 79 research postgraduate students.

The School focuses its research activity on the following main research areas: Materials, Surface Engineering, Manufacturing Processes and Technology, Numerical Modelling, Design & Simulation, Manufacturing Systems, Dynamics & Control, Flow Processes, Alternative Energy & Environmental Protection, Instrumentation and Measurement, Engineering and Technology Management

Most research projects involve small numbers of researchers or are executed by individual school members many of whom have secured individual research grants. A number of staff members are involved in one or more of the following University Designated research Centres:

- ◆ Material Processing Research Centre (9 school members)
- ◆ National Centre of Plasma Science and Research (4 school members)
- ◆ National Centre of Sensor Research (1 school member)
- ◆ Vascular Health Research Centre (2 school members)

There exist three other, School-based research groups: Centre for Intelligent Design (C-IDEAS), Engineering Analysis and Simulation, Industrial and Manufacturing Engineering Centre (IME). In addition, The School has a research convener.

Organisation and Management of the School

The Head of School of Mechanical and Manufacturing Engineering, appointed by the University, bears the overall responsibility for management of the School. Currently he reports directly to the President of DCU. However, with the introduction of new faculty structures and Executive Deans, it is expected that the school heads within the faculty will report through the Executive Dean.

The Head is supported in this role by the School Executive (SE). The SE was formed in January 2003 on the recommendation of the Head. It is composed of five members as follows:

Garrett McGuinness: Undergraduate Programme Co-ordinator

Tamas Szecsi: Postgraduate Programme Co-ordinator

Lisa Looney: Research Co-ordinator

Brian Corcoran: Academic Support Co-ordinator

Paul Young: Financial Co-ordinator

Liam Domican: senior technician (ex officio member of SE), representing all lab and workshop technicians

The Head of School is an ex officio SE member, although unless a special case occurs he/she would not normally be present at the SE meetings. The document describing the roles and responsibilities of the SE was signed by the Head and the SE members in March 2003. It was agreed that the SE would provisionally be formed for a three year period, after which membership would be assigned on a rotational basis. The introduction of SE greatly reduced the need for general School meetings.

In minor, operational issues, the SE acts on behalf of the Head. In more significant issues (strategy, planning, policies) the role of the SE is to discuss and develop draft documents that are to be discussed with all members of the School and then approved by the Head.

The School is also represented by the relevant School executive member at Faculty meetings through the Faculty Teaching, Research, and Academic Support Boards.

Following an externally facilitated discussion in February 2005 various changes were made to the operation of the SE.

In reviewing the overall organisation and management of the School the PRG considers its major strengths, weaknesses, opportunities and concerns to be as follows:

Strengths

- Good staff, committed and able
- Effective delivery of programmes
- Growth of the School
- Extensive development of undergraduate and postgraduate programmes
- New building
- Well established and agreed staff loading metric
- Concept of a School Executive committee

- Commitment of the University management to support the School executive

Weaknesses

- Outgrown earlier management structure.
- Strategic plan needed to cover in all areas of teaching, research, and management
- Absence of good communications system
- Non-implementation of existing systems and procedures
- Lack of transparency
- School Executive is not functioning as effectively as it should
- Poor senior to junior staff ratio
- Use of valuable resources to support School IT system
- Staff Development needs to be more realistic.

Opportunities

- Rationalisation of programmes
- Reduced staff administrative load by harnessing Faculty staff personnel.
- Rationalise IT provision across the faculty
- The introduction of the Faculty system creates an opportunity to revamp the management of the School.
- Reorganisation of the School Executive
- Potential to develop Staff expertise
- Reduce staff administrative workload by transfer to Faculty

Concerns

- Delayed implementation of the new Faculty system
- Lack of integration of School in to the Faculty system
- Further loss of key staff
- Further administrative loading as a result of not integrating with the Faculty system.

Overall assessment:

The school has achieved its growth targets of an undergraduate programme and a new, much appreciated building. Students enjoy their experience. They appreciate the small classes compared to their peers in other colleges and the fact that the staff are approachable. Graduates are satisfied. Staff continue to be available to them post graduation and this is much appreciated.

However, in achieving those goals, the school has outgrown its initial structures and needs a new approach to manage a more stable situation. The objectives of the "Strategy for beyond 2000", produced in 1996 have largely been achieved. The last review was in the Jan., 2002. A new Strategic Plan is needed. While the School Executive Committee is a welcome development much remains to be accomplished. In particular, formalisation and transparency in planning is required as is a system for prioritising requirements.

Programmes and Instruction

The PRG found that facilities for teaching were excellent. The School offers a range of undergraduate and postgraduate programmes although there are concerns about the low, and in some cases declining, numbers on undergraduate

programmes. The panel spoke to students from both undergraduate and postgraduate programmes and to some recent graduates. The vast majority were very supportive of the School and appreciative of the level of support from staff. Although an externally facilitated discussion with final year students took place in December 2004 the panel felt that much remained to be done in the area of student consultation. At a minimum, both module and programme evaluations should be carried out each semester. The panel's overall assessment of the strengths, weaknesses, opportunities and concerns was as follows:

Strengths

- Commitment of the University at the highest level to the Mechanical Engineering programmes
- Range of degree programmes
- Enthusiastic student cohort
- Almost common structure to first year of the degree programmes
- Excellent facilities for laboratory classes.
- Denominated degree programmes coupled with flexibility and the common entry option

Weaknesses

- Low student entry numbers
- Lack of feedback from students, students not using teaching evaluation system; students not attending Programme Board
- Students' lack of appreciation of the cumulative grading system
- Lack of feedback to students on coursework

Opportunities

- Consider re-titling the undergraduate programmes
- Set up a staff–student liaison committee chaired and minuted by students (useful experience for the students)
- Eliminate duplication of modules across the Faculty

Concerns

- Lack of support for research management will further exacerbate the financial position of the school
- Trend of student entry numbers and its effect on the School income
- Risk of compromising the quality and standing of the programmes as a result of the School's proposal to reduce the level of mathematics requirements
- Engaging in sub-degree programmes.

Overall Assessment

The current structure of courses appears to be spread too thin with four undergraduate courses, two post grad and the plan for one at Technician level. The delivery system is being rationalised with the possibility of consolidation in the light of current student projections. The prospect of the implications of the Bologna Agreement may complicate the situation even further. As part of this evaluation we suggest a review of modularisation to establish its real benefits in the current situation.

The immediate need is for the completion of the exercise of rationalisation of the current modules to eliminate duplication between courses and schools and the evaluation of those not attracting sufficient support.

Scholarship and Research

The School has a very supportive and positive attitude to research. All staff members are research active and are keen to have a highly productive research programme. The School and Head have been particularly successful in the recruitment of overseas research students and this has contributed significantly to the development of the School both academically and financially.

In order to build on this success the processing of postgraduate applications must be streamlined and problems associated with delays in registration (e.g. due to visa requirements) monitored and information effectively transferred to the relevant nominated supervisor

To further develop its research capacity the School must exploit national/international funding mechanisms more effectively, integrate researchers into groups of critical mass to enhance their research capacity at all levels and provide clearer and more directed mentoring of postgraduates with a view to the generation of publications in high quality international journals at an early stage. The better integration of research and teaching laboratories and the training of technical staff to provide support in research-associated techniques/equipment are essential.

Strengths

- Recruitment of high numbers of non-EU postgraduate students
- Considerable equipment provision and support for research
- A generous space provision available for research overall
- Significant technical support for teaching & research
- All staff are research active
- A good, research positive environment

Weaknesses

- Lack of use of the full range of research funding opportunities
- Publications limited to a narrow range of journals
- Lack of coherence in/across research programmes
- Variable quality of postgraduates
- Concern about the entry level of non-EU postgraduates
- Lack of understanding by staff of the internal funding allocations

Opportunities

- Use of a wider range of international journals to develop international standing
- Exploit a wider range of funding opportunities
- Formation of critical mass groups for research to attract funding (via Faculty structure)
- Exploit the existence of senior non-university personnel within the organisation to strengthen the research management in the School.

Concerns

- Further reductions in internal funding support for postgraduates
- Sustainability of current funding mechanisms and its dependence on one person.

Overall Assessment

Currently there are about 10 areas of research spread amongst 17 Academics. This appears to us to be non-sustainable if the School is to achieve critical mass and sustainability.

One of the objectives of the school is to develop "Leading edge research centres assisting Irish SMEs to exploit new technological developments etc." There is no evidence of this.

In January 2002 the School looked at its research activity and made a number of suggestions. In implementing them, there is a need to decide to focus school research activity in areas likely to attract funding. This then needs to reach the critical size necessary to survive in the evolving National and European research environment.

In this context the development of the Faculty Research Board may be critical. It is suggested that in developing this focus the creation of an Industry Advisory Board for research might help to encourage focus as well as industrial funding.

Staffing, Accommodation and Resources

The staff complement is 31. This consists of 17 academic staff (15 permanent, two temporary), 10 permanent technical staff, one secretary with a permanent position, and three research officers (one permanent, two temporary). Most of the staff are in the 30-45 age band, and the number of senior staff is below the DCU average.

The School occupies 3,687m² space (82 labs/rooms/offices) in the new Engineering Building. Most undergraduate laboratories are reasonably well equipped. There are four computer rooms with a total of 150 personal computers. In addition, each staff member and research student has their own PC. The School has its own local area networks (one for students and one for staff). Most research labs are outside the Engineering Building - in the Albert College extension.

The School budget (pay allocation, School recurrent budget, research recurrent budget) has been under pressure and will be lower again this year. The lack of a dedicated capital budget makes planning of equipment purchase difficult.

Strengths

- Good cohort of academic staff covering the necessary range of subject areas
- Good number of technical support staff with relevant skills.
- High quality well equipped space
- The ability of the Head to build a successful School *ab initio* with limited resources

Weaknesses

- Extravagant use of space
- Dealing with a reduced budget
- Lack of a properly structured equipment support plan
- Extension of the equipment base without complimentary enhancement of technical skills and provision for maintenance
- Clear separation of undergraduate and postgraduate facilities.
- Lack of formal School policies covering the award of sabbatical leave

Opportunities

- Make better use of the space in the new building thus facilitating better integration of teaching and research and effectiveness of technical support
- Provide technical staff with specialised training in the use of new equipment

- Consider sharing the technical staff support system across the Faculty

Concerns

- The inability of the operating budget to fund adequately the core activities of the School.
- The lack of adequate numbers of senior staff is inhibiting the evolution of an appropriate management structure for the School and hence its sustainability

Overall Assessment

Staff in the School have an appropriate range of expertise, however, the low ratio of senior to junior members of staff is a cause for concern. Technical staff are motivated and committed but would appreciate a more structured career path. The new building is excellent although the separation of undergraduates (new building) and postgraduates (space in Albert College) is not ideal. The possibility of greater integration and more efficient use of space in both buildings should be pursued. The School faces a reducing budget.

Social and Community Services

The School demonstrated that it was involved in a range of activities to promote interest in engineering at secondary school level and in recruitment. It has and proposes to take initiatives in relation to training of staff for industry and it was clear, from the responses of past graduates, that staff were proactive and very helpful in assisting them in solving work-related problems on an ongoing basis.

6. Recommendations for Improvement

The PRG recommendations are laid out below. Each is given a priority. The meaning of the priority indicators is as follows:

- P1: A recommendation that is important *and* requires urgent action.
- P2: A recommendation that is important, but can (or perhaps must) be addressed on a more extended timescale.
- P3: A recommendation which merits serious consideration but which is not considered to be critical to the quality of the ongoing activities in the School.

Additionally, the PRG has attempted to indicate the level(s) of the University where action is required:

- S: School of Mechanical and Manufacturing Engineering
- F: Faculty of Engineering and Computing
- U: University Executive/Senior Management

Where considered appropriate, action at multiple levels is recommended: this should be considered as inclusive, indicating a need for co-ordinated, complementary, actions at *all* the indicated levels (rather than, e.g., at “any one level”).

Organisation and Management of the School

1. P1-S: The School needs a new strategic review of its Course strategies; Research objectives; Organisational structure and philosophy; and requires a Management System to deliver on this strategic future.

2. P1-F: The above review should be carried out as part of the development of Faculty Strategy. The development of the Faculty structure is both a challenge and an opportunity to both the school and faculty management.
3. P1-U: The challenge to the University is to choose to realise that potential.

Programmes and Instruction

1. P1-S: The School should explore the market appeal of variations in the titling of the programmes. Medical and Bio terminology seems to be very attractive at other universities in the UK and Ireland. Perhaps the word "Mechanical" is inhibiting recruitment.
2. P1-S: A more formal system for gathering student feedback should be implemented coupled with the setting up of a staff-student liaison committee chaired and serviced by students. This will enable a continuous improvement system for all matters relating to teaching and research and improve the awareness of students of the various systems and procedures that are in place.
3. P2-SFU: The proposals to develop programmes that accommodate students with reduced mathematics ability and the provision of sub-degree level programmes is not recommended and is inconsistent with the potential of the high quality of the staff and facilities. However, this recommendation should be viewed in the context of the overall mission and strategy of the University.
4. P2-SF: Some further rationalisation of the programme modules seems necessary to reduce the staff teaching loads. Consideration should be given to increasing the number of modules that are common across the programmes without detracting from the attractiveness of the denominated degrees.

Scholarship and Research

1. P1-SFU: Review, consolidate and develop Research Groupings of a critical mass to maximise ability to compete effectively at University/National/International levels. This may require strategic alliances between the Schools within the Faculty and across the University.
2. P1-S: Clarify procedures for obtaining School-based financial support for research and effectively exploit all external funding programmes available. This is essential in the current financial situation to maintain existing levels of research and to make significant progress in the future.
3. P1-S: Review and optimise procedures to ensure recruitment of high quality postgraduate students both nationally and internationally.
4. P2-S: Aim to increase both quality and numbers of research papers in high quality international journals. This is necessary to enhance the Schools national /international standing in research.
5. P1-SFU: New senior appointments should be made in strategic areas to strengthen School's research profile.

Staffing, Accommodation and Resources

1. P1-U: Address the poor senior to junior staff ratio
2. P2-U: Provision should be made for the promotion and reward of technical staff.
3. P2-U: A structured equipment support plan is required.
4. P1-S: Make better use of the space in both buildings to facilitate better integration of teaching, research and effectiveness of technical support.