

Comhairle na nDámhachtainí Ardoideachais agus Oiliúna

The Higher Education and Training Awards Council

Abridged HETAC report on the application by Waterford Institute of Technology for accreditation to maintain postgraduate research degree registers at masters level in Science, Business, Humanities and Engineering and at doctoral level in Science.

August 2005

1 INTRODUCTION

On 17 December 2004 Waterford Institute of Technology (WIT) submitted an application to HETAC for accreditation to maintain postgraduate research degree registers at masters level in Science, Business, Humanities and Engineering and at doctoral level in Science.

Two Panels of expert assessors were assembled by HETAC to evaluate the case for accreditation. The assessors visited the institute and met with the management team as well as research staff and students.

HETAC following consideration of the Panel's findings and the response of the institute decided to accredit Waterford Institute of Technology for five years (until 17 December 2009), to maintain a register of postgraduate degrees at masters level (level 9) in the areas in the schools of Science, Business, Humanities and in the areas in Mechanical Engineering and Electronic Engineering (Department of Engineering Technology) reflecting the expertise of the research-active academic staff and at doctoral level (level 10) in the areas in the School of Science reflecting the expertise of the research-active academic staff.

Accreditation is subject to conditions determined by HETAC and may be reviewed by HETAC at any time.

2 FINDINGS

2.1 Summary

The two Panels were impressed by the progress already made by Waterford Institute of Technology in building a research culture and commend the Institute, its staff and students for the achievements to date.

The Panels observed, during the visit and through their meetings with the researchers (students and staff) presented, that a widespread and genuine spirit of collegiality, community and commitment to research prevails within the Institute.

The Panels were convinced that there exists in Waterford Institute of Technology a research resource which can and will deliver at the level(s) recommended. Overall the experience of the site visit helped to increase the confidence of the Panels in making a positive recommendation.

The quality of the physical facilities available to virtually all of the researchers at the Institute is of a high order.

There appears to be significant encouragement for staff to carry out research, and some practical support by way of reduced teaching hours, conference travel funding, incoming/outgoing sabbaticals (recently formalized), research driven promotion etc.. However, there is still relatively limited incentive as regards promotion to senior levels for active researchers. Clearly, without a very strong incentive it will be difficult to attract and retain the very best people.

In its endeavours to establish 'pinnacle' areas of research excellence the Institute will no doubt find ways, as it must, of enhancing its research capacity by attracting more established senior research leaders. Moreover, the difficulties of recruiting new academic staff with PhD degrees to the normal entry grades is recognised and needs to be addressed.

Specific recommendations and suggestions in the body of this report are numbered for ease of reference.

The Panels found that Institute will be able to meet with the criteria for institutional accreditation to maintain a register of postgraduate research degree students. It was recommended that Waterford Institute of Technology be accredited to maintain a register of postgraduate degrees at *masters level* (level 9)

in the areas in the schools of Science, Business, Humanities and in the areas in Mechanical Engineering and Electronic Engineering (Department of Engineering Technology) reflecting the expertise of the current research-active academic staff

and at doctoral level (level 10)

in the areas in the School of Science reflecting the expertise of the current research-active academic staff

subject to the standard conditions and

- 1) The Institute should produce a response detailing how it will address the issues raised by the assessors.
- 2) If the Institute wishes to continue to offer practice-based masters level research programmes in Art it must take steps to establish a suitable research environment (perhaps by establishing formal links with a suitable institution) and arrange for co-supervision by appropriate (research-active) practitioners.
- 3) The Institute should revise and update its regulations, procedures (including learner assessment procedures in line with the 2004 HETAC Standards), submit these to HETAC and obtain its agreement.

2.2 Comments in respect of the May 2004 visit

A Panel chaired by Professor Eda Sagarra considered an earlier application by the Institute for accreditation in all areas in May 2004. While declining to recommend accreditation at that time, it suggested that the Institute might make a revised application for accreditation in selected areas of research strength. Following this, HETAC invited the Institute to make a revised submission taking into account those findings.

The Chairman had the impression that the Institute is now much better informed and aware of the core quality issues than it was at the time of the earlier evaluation in May 2004 and is acting accordingly.

2.3 Institutional accreditation criteria

The Science and Engineering Panel had the task of making a recommendation on the case for institutional accreditation (Appendix A of the HETAC policy document). However, some members of the other Panel also had relevant observations.

The Institute is to be commended for the open and broadly self-critical way in which necessary improvements (in respect of the institutional criteria) are set out.

Overall Waterford Institute of Technology presented a very impressive, professional and coherent image both in its documentation (in respect of Appendix A of the HETAC policy document) and its presentation during the visit.

The research students presented described the Institute as supportive and caring in its dealings with students and their needs.

While the Institute is still short of having created and implemented a continuous improvement system, it is clearly on the right path.

More specific comments follow.

Regulations and code of good practice

Post Graduate Research Policy and Procedures and *Course Quality Assurance Procedures* (Exam regulations and awards procedures) are available to both research students and teaching staff.

Both publications are dated 2002.

It appears that some aspects of the procedures are still at an early stage of implementation at school and departmental level (e.g. progress reports).

1. The *Course Quality Assurance Procedures* are more focused on undergraduates and should be revised to include more specific procedures for postgraduate research students.
2. The Institute's *Post Graduate Research Policy and Procedures* document requires revision.
3. The Institute should ensure that the revised procedures are implemented consistently across the whole organisation.

Research performance indicators

The publications rate (at the level of journal) is weak but staff seem both well aware of that and keen to remedy the deficit.

The definition of 'research active' adopted by the Institute implies that a staff member who has in the previous 12 months supervised or acted as associate supervisor for 1 research student is deemed research active. This definition is not in accordance with international standards. It is recommended that the Institute either adopts a narrower definition in terms of the remaining indicators (used in the definition) or that the number of staff involved in research is reported under two categories: one including the supervision indicator and the other excluding it.

4. The definition (criteria) of 'research active' adopted by the Institute should be reconsidered.
5. Researchers should continue to be encouraged to increase the publication rate particularly in major peer reviewed journals

Intellectual property

Intellectual property guidelines are referred to in Chapter 3 of *Postgraduate Research Policy and Procedures*. Reference is made to an Institute policy being drawn up on intellectual property, with a draft policy as set out by the Academic Council being used as a guideline in the interim. The Institute maintains that it is active in updating its IPR policy (for example to include third parties).

6. Prior to accreditation the Institute should review its intellectual property policy and take steps to ensure that all research staff and particularly research students receive training in this area.

Research administration and quality assurance

Research quality assurance appears to be over-centralized and over-complex in its present form. The submission documentation included little information about the implementation of quality assurance within the schools/departments. Interviews revealed that implementation varies widely between schools and departments.

Plans for improvement are being developed at the institutional level. Significantly, the Institute is developing a structure in which quality assurance benefits from a bottom-up approach. It is too early to elaborate on this but it is encouraging that the problem is recognized and that solutions are being developed.

The intention to create an *Awards Office* for the support of QA procedures seems positive. However, this will create another administrative structure and the people and bodies that are involved in QA are already numerous.

Quality needs to become an integral part of the culture of Waterford Institute of Technology (and of each staff member) and responsibilities should not be divided between numerous bodies.

7. It is recommended that the Institute be encouraged to be more confident in developing its own vision on quality instead of simply complying with the HETAC accreditation criteria.
8. It is recommended that external stakeholders (such as employers and alumni) be more involved in quality assurance procedures (e.g. surveys).
9. It is suggested that the Institution consider establishing an annual satisfaction survey of all research students and personnel.

Research leadership and motivation;

There is very good moral leadership – though it is observed that heads (of departments and schools) are often less qualified academically (and in terms of their actual research) than younger colleagues but it is appreciated that this is historically based.

More specific comments in respect of the schools are set out in later sections.

Monitoring research progress

The Institute Research Council is in its infancy and therefore how that council would interact with the school/department in the future was not fully evident. Once the role of the council is more clearly articulated and indeed understood by the school/departments this may significantly help to improve the planning aspect of the process. Perhaps there is also room for more external input.

Interviews have revealed that the *implementation* of progress reports varies widely throughout the Institute. The report forms and practice should be standardized.

10. There should be, where it does not yet exist, a mechanism for the student to report an evaluation of his or her supervision.
11. It is suggested that the Institute review its monitoring procedures in line with the principle of decentralization.

Equality of opportunity

According to the Waterford Institute of Technology submission there is a full time Equality Officer in place who is a member of the senior management team of the college.

In relation to opening up access to students with special needs, Waterford Institute of Technology has set up a Centre for Access Retention and Teaching.

Feedback, complaints and appeals

12. Mechanisms are in place but these need to be more focused on the needs of research students.
13. As noted earlier, the Institute should introduce a mechanism for student evaluation of supervisors.

Information: research studies programme

Research postgraduate students receive an Information pack with e.g. details on Development Office and Research Support Unit; academic responsibilities for postgraduate students; regulations for registration; financial and administrative matters; teaching studentship; resources and supports; other practical information, etc. The Institute is commended for providing this specific and useful information pack for research postgraduates.

14. Appropriate up-to-date information should be published to enable prospective students to make an informed choice.

Access to research degree programmes

The normal entry level requirement for a PhD at a higher education institutions (in Ireland and UK) is a 2:1 Honours Bachelor's degree or higher, or a 2:2 Honours degree along with a (usually taught course) Masters degree.

In specialist areas, having the taught masters degree course is often considered very valuable indeed, as the student then has a background in the general area of the research, and has had time to consider whether the general area is of real interest to them (such students are often better-motivated than "raw" graduates).

Most supervisors would be very wary of taking on a PhD student with a 2:2 degree. It appears that, at Waterford Institute of Technology a student can enter to do an MSc by research with a 2:2 and then transfer to the PhD programme.

15. The Institute might wish to consider reviewing this and normally restrict transfer to candidates who achieved a 2:1 degree, or got a 2:2 and submitted and *passed at a high level* the MSc Thesis (i.e. not just a transfer exam based on a report).

It was observed that most of the research students are graduates of the Institute.

16. The Institute is encouraged to diversify the student population by trying to increase the proportion of students from other higher education institutions.

Transfer between the doctoral and masters Registers;

17. The institute should review its transfer procedures so that, 1) students who are suitable and willing candidates for transfer from the Masters programme to the Doctoral programme be transferred at an earlier stage in their research. A suitable time may be between 12 to 18 months into their research; and 2) there are formal institutional criteria in place for deciding on whether a transfer should be attempted.
18. The Institute might explore if any additional steps need to be taken to address the concern of the assessors that staff who have not themselves completed Doctoral degrees might not recognise the potential of some students to transfer to doctoral level and that this may disadvantage the student.

Direction, supervision, support and training of students;

Generally the provision is good and in terms of training clearly continuously getting better.

For example, students in the humanities area spoke – as did staff – of the tangible advances at institutional level over last year's general training programme. Humanities students found the

sharing of experience with other discipline areas most helpful, especially the way in which the Institute and the Schools facilitated 'visitors' from other discipline areas.

19. In terms of quality assurance it is suggested that staff doing higher degrees in their own department always have an external co-supervisor who has an active (i.e. recorded and documented) input.

The Institute has very good physical resources for research. However, it might consider reviewing access to the physical buildings, laboratories and office/ desk spaces to allow access outside normal hours.

More specific comments in respect of the schools are set out in later sections.

Supervisor training and support:

There are plans for providing training for supervisors (to keep abreast of their subject, be personally research active, and support identified training needs).

20. There should be a training programme in place for new supervisors – the Panels did not find widespread evidence of this (apart from the Business School) during the site visit.

Postgraduate research degree: Assessment of the student;

This is comparable to national approaches.

21. However, the Institute should update its assessment processes in line with HETAC awards policy and the Framework-based standards published by HETAC in February 2004 and submit these for agreement by HETAC.

2.4 Accreditation criteria in respect of Science

The criteria for accreditation are set out in the Appendix B to the HETAC document entitled *Validation process, policy and criteria for the accreditation of providers to maintain a register for a specified research degree in a specified discipline area 2003*. Each criterion is addressed in the following sub-sections. In reaching its decision the Panel considered each criterion and in *some cases* made specific comments: these are set out below.

The Institute applied for accreditation to maintain a register at masters and doctoral degree levels in science.

The overall impression of the Panel was that the School of Science is rapidly developing and has made large strides in recent years.

The Institute clearly meets the criteria to be accredited to maintain a register at masters level (level 9) in areas in the School of Science *reflecting the expertise of the current research-active academic staff*.

In the case of the doctoral (level 10) accreditation the case is subtler. There are some deficiencies (see staffing and research publication in respect of areas within Department of Physical and Quantitative Sciences below), which need to be addressed. There is a stronger case for the Chemical and Life Sciences area.

The documentation presented by the School of Science was not of the same standard of quality and attention to detail as the Institutional (Appendix A) submission. This is in contrast to the very professional presentation on the day of the visit. The Institute should review the consistency and attention to detail in the Science (Appendix B) submission.

Research environment: Is there an active, supportive academic environment and research community in the subject or discipline area for which accreditation is sought demonstrated by traditional research performance indicators?

Physical and Quantitative Sciences

The institute hosts very dynamic and active academic and research teams in this general area, and specifically, in computer science (ICT).

The last few years have seen tremendous success in attracting funding, and a substantial improvement in the quality of publications. The Telecommunications and Software Systems Group (TSSG) stood out as a group that has been exceptionally successful in developing a funding stream for its research. Overall, there seems to be an over-dependence on what could be termed applied research funds. The development of a more balanced grant-income profile across the groups would be advisable in the context of doctoral level activity.

The facilities, both currently in place and those under development, are very impressive and more than adequate for accreditation purposes. They equate well with any research active department in Ireland or Europe.

The more intangible *student experience of the environment* was equally impressive. All the students spoken to felt that they were well supervised; and given full support by the staff, school, and Institute. The staff should be congratulated for this.

Research topics in computer science, particularly in the area of the TSSG group, are state-of-the-art in the field of pervasive computing. Students exhibited some of these in poster presentations during the visit. The students, while clearly presenting advanced issues in pervasive systems, had difficulty identifying their research contribution. This could however be understandable since they were typically master students, who had just started their research; their supervisors could however present the issues in a clear manner.

The Institute has graduated a number of research students to date. It was surprising to observe that the Physical and Quantitative Science (PQ) department had only graduated a single PhD student so far, however, several students were in the process of transferring to the PhD register.

(The TSSG area appears to have had only one current PhD student, who was not in the student group that was presented to the Panel).

A major concern, in the context of a very strong submission, relates to the level and quality of publications from the constituent groups. The Panel found an over-emphasis on publication in high acceptance rate workshops and conferences; and a low Journal publication rate. Particularly in the case of TSSG, the number and quality of publications did not match the staff and grant profile. After discussions with team members, it became clear that computer science research is moving from an opportunistic funding model to a strategic activity development; likewise, better conferences and journals are being targeted for their publications. Obviously, staff supervising level 10 students should demonstrate discernment and quality, rather than quantity, in their publications and collaborations.

22. The Physical and Quantitative Sciences Department or the associated groups should establish a plan for the enhancement of their research capacity at Doctoral level over the coming years.

Another significant reservation as regards PhD level accreditation (to have a Register) in this area is that one assessor felt that there may not be a sufficiently full appreciation by a few of the staff met by the Panel, of the distinction between the MSc by research degree and the PhD degree. The formal period for an MSc by research is two years, and that for a PhD three years, but the ratio of attainment by the student is not 3:2 (PhD:MSc) but substantially more (notwithstanding the fact that in practice the *fluctuations* are huge across the higher education sector). The PhD should be a challenging task, probably involving some element of risk and possibly not bearing fruit for a considerable period (3-4 years). It is not usually a series of well-defined tasks with a short-term pay off (which is closer to the reality of the MSc by research). It is not as though the student does “MSc level work” for two years, and then, perhaps with one more “task” completed has now satisfied the requirements for the PhD. The PhD is all together more challenging and demanding from the very start of the studies.

Chemical and Life Sciences

It was stated, and was evident from documentation presented, from the organization of the labs and from the number of multi-author interdisciplinary publications, that the researchers had formed themselves into active research groups and that together they had established a critical mass that was providing effective support in all aspects of research. This area has graduated about 10 doctoral students since 1993.

It was clear to the assessors that the groups in this area and the systems they work within are well capable of producing highly motivated, well trained, articulate, analytical and internationally credible Masters and PhD graduates.

The groups presented have formed a cluster to generate the necessary critical mass to optimise research output and maximise utilisation of resources. This is a well-founded strategy to pursue given the stage of development of research at Waterford Institute of Technology and national policies for research.

The staff are highly motivated and enthusiastic, they have been successful in obtaining grants from a variety of sources. The researchers are active in publishing in major international journals related to their respective specialisms.

The relevant research facilities at Waterford Institute of Technology were observed to be of a very high quality. The four dedicated research labs were modern, air-conditioned facilities equipped with all the necessary equipment to conduct scientific research. The level of support equipment and back-up facilities were of a very high standard.

The interaction between students and students/staff was very good and the overlap between activities was impressive and showed dividends for example where progress was made by the

separations group by way of the fact that an organic chemist was present in the group who provided valuable synthetic chemistry ideas.

The assessors had wide-ranging discussions with the research students both on general issues and on their projects. The following paragraphs outline the findings.

Particularly impressive was the community spirit that seemed to prevail among the students, who expressed a unanimous vote of support in favour of their supervisors. It was clear from discussion with the students that the community environment at Waterford Institute of Technology was very supportive for research. Indeed, the term 'community' was an excellent description. All of the students clearly expressed the opinion that their situation was excellent. They received excellent guidance from their supervisors, the various groups collaborated effectively and they had plenty of opportunities to collaborate with other researchers and to attend national and international meetings. Equally impressive were the library/research-student write-up areas which were housed in state-of-the-art facilities. Here, electronic access to important journals was available, together with a large, spacious room with very generous computing facilities dedicated to research students. All were very happy at Waterford Institute of Technology, which is of course very important in a research environment. Also impressive was the level of dissemination of research findings, with a high level of publications in good quality journals, and attendance/presentations at international meetings. While the vast majority were Waterford Institute of Technology graduates others had come from industry or from overseas.

In most cases more than one staff member was involved in the project and many projects had additional collaborators e.g. in industry, in the regional hospital or in other third-level institutions. There is a very supportive research community. The students felt that the groups worked very well together and were very supportive. They clearly felt that their research was very worthwhile for their careers, was very enjoyable and that facilities and supervision was very good. Overall the time frame for completion of Masters and Ph.D.'s seems to comply with nationally accepted norms. The students appear to be well supported financially during their programmes.

23. It is recommended that a formalised fully documented process is established whereby the progress of each student is evaluated on a yearly basis and full records retained.

24. It would be beneficial if additional technical support were available to support research.

Is there evidence of academic guidance, authority and leadership?

Leadership capacity is highly variable between different groups in the Physical and Quantitative Sciences.

Leadership at doctoral level was clearly demonstrated in the Chemical and Life Sciences area.

25. Given that the Physical and Quantitative Sciences Department have yet to establish a track record in the supervision of doctoral students it would be prudent to explore ways of learning from the experience already gained in this respect from the Chemical and Life Sciences Department.

Are there procedures for the planning and monitoring of postgraduate programmes of research within the discipline area?

Monitoring procedures are well developed in the Physical and Quantitative Sciences area but are perhaps overly prescriptive.

In the Chemical and Life Sciences Department, there is a mechanism whereby students had to undergo a rigorous evaluation before transfer from the Masters to the Ph.D. register. Members of the Panel examined one transfer thesis and questioned the students on the process. The students were clearly very aware of the importance of the process. The transfer process in each case involves evaluation by staff within Waterford Institute of Technology and by an external expert evaluator. Many students had gone through the process and they were happy with it. It was clear that the required level of performance must be achieved before the student is allowed to transfer.

26. Nevertheless, the transfer criteria should be tightened up, as should the length of time allowed for the thesis to be prepared. The present system allows a student too long a period in which to write up, placing unnecessary economic constraints on the Department.

Is there specialised training dictated by the discipline and the nature of the research being undertaken?

The students presented in the Physical and Quantitative sciences had the opportunity to attend international conferences (at least one per annum). Adequate training is provided to research students in the Computing area, in the form of: research and group seminars, presentation to peers, general library use, complementary undergraduate courses, and specialised postgraduate courses (such as the one run this year by one of their German collaborators).

27. However, the provision of training overall is variable, and as a general rule, the amount of specialised training could be increased.

In Chemical and Life Sciences, the academic staff use a very 'hands-on' approach. Students pointed out that they were in daily contact with their supervisors and that there was excellent transfer of skills between research students. Several had attended specialized training in overseas or Irish labs related to their research. In addition there are seminars available, excellent opportunities to attend national and international conferences and Waterford Institute of Technology has a training programme for all research students though this tends to be of a general nature related to research. Overall it was clear that the students were obtaining an excellent training.

There are also plans in place for department based training (in addition to the generic training provided by the institute) for research students which look promising.

28. The Institute is encouraged to support these plans.

Are there staff who:

are willing to lead research programmes?

are sufficiently qualified to the level of the programmes of research for which accreditation is being sought?

have prior experience in the supervision of research students to successful completion?

are engaged in research, advanced study and other activities relating to practice in the subject or discipline area concerned?

Physical and Quantitative Sciences

In the Physical and Quantitative Sciences area some of these criteria are only just met for level 10. Generally, the staff presented were very well motivated and knowledgeable in their areas. One assessor was particularly impressed by the ISOL staff who demonstrated examples of *best practice* in the management and supervision of their students.

The staff were appropriately qualified for the current level of activity. On balance the PhD qualified staff were small in number and in the early stages of their careers.

While a reasonable proportion of staff members are regarded as research active; and such a number is satisfactory for the level of planned activity in the coming years, a significant number of research active staff do not yet have doctorates. It is understood that many of these researchers had been appointed before the Institute became actively research led. Contract research fellows bolster capacity in the ICT area and increased the numbers of PhD qualified staff which is of course positive. Nevertheless, there is clearly a need to support and encourage the existing lecturing staff to complete PhDs where appropriate.

29. The Institute should explore ways of increasing the number of senior ICT staff to extend both the depth of experience in PhD level supervision and leadership in these areas.

Chemical and Life Sciences

The group of assessors that viewed the Chemical and Life Sciences activity had wide-ranging discussions with the staff. The level of commitment to and enthusiasm for research is excellent and has ensured that the students are inspired to do postgraduate research as a result. All of the staff met were very well trained, most with PhDs and postdoctoral/industrial experience. They are well capable of leading research projects. The staff members encountered were all research active and the level of funding and support was impressive. It was of particular note that great strides in research had been achieved in the last 3-5 years.

Are there adequate physical resources as well as technical and administrative support structures and attendant staff appropriate to the research being undertaken?

Generally, the facilities for the students in the Physical and Quantitative sciences were found to be of a very high quality.

Assessors visited the IT building, which contained well-maintained state-of-the-art computer laboratories, and offered a very pleasant working environment. The TSSG group is in temporary rented accommodations, while their new building is being completed. The accommodation offered a good mix of open space for students and offices for members of staff. Assessors, while visiting the TSSG group, observed some of the journals being subscribed to, directly accessible to the whole group; they included a good selection of ACM and IEEE publications, plus a number of magazines. Discussions also confirmed they had institutional access to ACM/IEEE digital libraries.

In respect of the Chemical and Life Sciences the documentation received provided little detail on the laboratories and equipment available. A list of equipment was requested and generated immediately. The assessors spent a lot of time carefully examining the laboratories, equipment and general facilities. They were very impressed with the quality, maintenance and organization of both the laboratories and the equipment. Many of the laboratories have been refurbished over the last few years and are of an excellent standard. Further refurbishment and an increase in dedicated research space is underway or planned in the near future. The dedicated research space was very well equipped with fume hoods and other specialized rooms. The assessors noted excellent state-of-the-art equipment related to all the areas examined. One assessor commented that there are no comparable facilities in any other labs in Ireland that he had visited. There was an excellent range of equipment available and all the students were of the opinion that they had excellent access to any facilities that they required.

There is limited technical support and most equipment maintenance appears to come from contracts and is paid for by contract work done by the groups or by the Institute directly.

Administrative support appears to be adequate. Assessors visited the library and were impressed by the quality and range of databases and 'on-line' journals available.

There is an excellent research-student-dedicated suite attached to the library where all students had desks, access to meeting rooms and excellent IT facilities. In short, there was no evidence of any lack of support.

Are there seminars, both focused and interdisciplinary, to facilitate the dissemination and exchange of the fruits of research, enabling peer review and quality assessment?

30. In the Physical and Quantitative Sciences there are seminars etc. but there should be more (e.g. regular seminar programmes in all sub-areas of research).

In the ICT area both group and departmental seminars are run on a weekly/monthly basis to promote interactions. There is a tacit policy to send students to a conference on a yearly basis; discussions with students seemed to indicate that such conference attendance was indeed taking place on a yearly basis, and possibly more often when funding was available.

In the Chemical and Life Sciences area there are seminars available and the students take part in these. It was also very important to note that all the students presented had attended a number of meetings specifically on their respective research topics.

Are there opportunities for interaction with other postgraduate research candidates and their supervisors, both within and outside the institution and opportunities, where appropriate, for collaboration with other providers of higher education, industry and commerce and the public sector etc.?

Generally positive.

Are there procedures for the implementation of quality assurance within the schools / departments concerned?

The documentation included little information about the implementation of QA within the schools/departments other than some general references to the institutional level. The Institute is in the process of developing procedures for the implementation of QA within the schools/departments which focuses more on the decentralized levels and in which QA within the Institute benefits from a bottom-up approach.

However, the research in WIT was recently evaluated externally so quality is a live issue. All the individuals met by assessors were very aware of the necessity of performing research that was of an internationally acceptable quality and would be published in the leading peer-reviewed journals in their research fields.

In the Chemical and Life Sciences, judging by the quality and numbers of recent publications this is now being achieved and the output is a credit to both staff and students.

Significantly, the subgroups in Chemical and Life Sciences seem to be more important than departmental level. Opinions on the usefulness of a research center in Chemical and Life Sciences vary. Larger scale advantages were mentioned but some staff seemed to be sceptical and gave the impression that it is more institutional policy than desired by staff.

2.5 Accreditation criteria in respect of Engineering

The criteria for accreditation are set out in the Appendix B to the HETAC document entitled *Validation process, policy and criteria for the accreditation of providers to maintain a register for a specified research degree in a specified discipline area 2003*. Each criterion is addressed in the following sub-sections. In reaching its decision the Panel considered each criterion and in *some cases* made specific comments: these are set out below.

The Institute applied for accreditation to maintain a register at masters degree level in engineering.

The Institute meets the criteria to be accredited to maintain a register at masters level (level 9) in areas in the Department of Engineering Technology *reflecting the expertise of the current research-active academic staff*.

The research in the area of the Department of Building Technology is clearly in an early starting phase where research is currently limited to project management studies with one student currently studying for a masters degree. The Panel found that the Institute does not at this time meet the criteria for accreditation at Masters level in this area.

Research environment : Is there an active, supportive academic environment and research community in the subject or discipline area for which accreditation is sought demonstrated by traditional research performance indicators?

In the Engineering Technology department there are a number of research active groups listed; some of which are established and some of which are in the early stages of development. The diversity of research subject area is very encouraging. Specific comments on two groups follow:

The AMT group is a long established initiative and boasts a leading national experimental facility. This group has graduated a substantial number of research students. It is now being oriented to embrace interdisciplinary subject areas. This group is well linked into the undergraduate teaching cycle in the Institute and clearly supports the connection between quality teaching and research.

The MCP group has already established a group of skilled multidisciplinary researchers and has developed strong high quality international linkages. Although this group has not yet used pre-doctoral researchers, it has potential to attract external graduate students to Waterford Institute of Technology as it exploits its international links through programmes such as Marie Curie. Indeed, given the opportunity, this group has the potential to attain critical mass and become attractive to senior researchers, which could boost this area to 'pinnacle' status within the Institute.

While there are certain issues that need to be addressed by the Institute, the environment in mechanical and in electronic engineering is adequate for accreditation at Masters level.

However, the Building and Civil engineering subject area (Department of Building Technology) is clearly in an early starting phase where research is currently limited to project management studies with only one student currently studying for a masters degree. This area does not meet the criteria for accreditation at Masters level at present.

The research activity within the School of Engineering is still in its starting phase. Of the 72 staff attached to the School, 11 have listed publications (in p19-21 of the engineering submission) in journals or conference proceedings during the last 4 years. The listed publications include 8 journal papers, 22 conference papers (and 2 Ph.D. theses).

31. It is recommended that in the future the staff be encouraged to choose journals as the primary place for final publication of research, partly in order to enhance the competitiveness of the research groups with respect to funding etc.
32. The Panel's overall impression is that the correct *processes* are in place, but that the Institute needs to promote links with other institutes and universities.

Is there evidence of academic guidance, authority and leadership?

The visit to the Institute, and especially the meeting with the students, gave the impression that the supervision of research students is functioning very well. All students found the provided supervision satisfactory.

Are there procedures for the planning and monitoring of postgraduate programmes of research within the discipline area?

Yes, but this appears to depend on individual supervisors

Is there specialised training dictated by the discipline and the nature of the research being undertaken?

Yes: Research methods courses are organized on a weekly basis.

Are there staff who:

are willing to lead research programmes?

are sufficiently qualified to the level of the programmes of research for which accreditation is being sought?

have prior experience in the supervision of research students to successful completion?

are engaged in research, advanced study and other activities relating to practice in the subject or discipline area concerned?

About ten percent of staff are research active at some level.

Are there adequate physical resources as well as technical and administrative support structures and attendant staff appropriate to the research being undertaken?

Yes, a major expansion of research areas has taken place. The support at all levels seems to be excellent and is perceived to be so by the research staff and students

Are there seminars, both focused and interdisciplinary, to facilitate the dissemination and exchange of the fruits of research, enabling peer review and quality assessment?

There is evidence of the above activities but as the master programmes become more established, it is expected that the importance of producing more top quality publications will gain more recognition. Increasing the attendance rate of registered students at international conferences and the role that this plays in building a research culture will also be addressed.

33. Seminars appear to be group dependant and more activity should be encouraged.

34. Participation in national and international conferences is weak and needs to be increased.

Are there opportunities for interaction with other postgraduate research candidates and their supervisors, both within and outside the institution and opportunities, where appropriate, for collaboration with other providers of higher education, industry and commerce and the public sector etc.?

There is good internal interaction between research personnel and a well nurtured research community. There is also high a level of interaction with local industry.

35. However, in other respects this area is weak and needs to be addressed. The research students seem to be rather isolated to the institution with very little interaction with the national and international research communities in their field. Most of the students are graduates of Waterford Institute of Technology.

36. It is recommended that research students be encouraged to participate with their own presentations in seminars, summer schools, national or international conferences.

37. The Institute might also consider exchanging students for a temporary stay (say 3 months) via department/school contacts or official EU or national arrangements of this type, e.g. Human Resources and Mobility (Marie Curie).

Are there procedures for the implementation of quality assurance within the schools / departments concerned?

Based on interviews with the students it is clear that the work quality and their understanding of their subject is excellent.

2.6 Accreditation criteria in respect of Humanities

The criteria for accreditation are set out in the Appendix B to the HETAC document entitled *Validation process, policy and criteria for the accreditation of providers to maintain a register for a specified research degree in a specified discipline area 2003*. Each criterion is addressed in the following sub-sections. In reaching its decision the Panel considered each criterion and in *some cases* made specific comments: these are set out below.

The Institute applied for accreditation to maintain a register at masters degree level in humanities.

The Institute meets the criteria to be accredited to maintain a register at masters level (level 9) in areas within the School of Humanities *reflecting the expertise of the current research-active academic staff*.

Research environment : Is there an active, supportive academic environment and research community in the subject or discipline area for which accreditation is sought demonstrated by traditional research performance indicators?

The Institute applied for accreditation of the School of Humanities to maintain a register at masters degree level.

The Institute, its staff and students are to be commended on their considerable achievements and improvements in the Humanities area over the past three years.

In general terms, although the quality and the quantity of the written submission for masters level accreditation was high it may have given an impression of *potential* research isolation both for staff members and for students, but this impression was dispelled during the site visit in most areas presented.

Interdisciplinary collaboration within humanities is an area of great potential that the Institute ought fully to exploit in the research context. In legal studies, for example, the close working environment shared with individuals from other subject areas in Humanities offers a rich source of future research possibilities.

Considerable progress has been made in recent years in the area of securing research funding.

There is evidence of efforts to secure publication, develop conferences and to render staff more prominent in the international community. Some research centers within the school have themselves identified as a weakness the relatively low level of publications published in peer-reviewed international journals, and are intent on addressing this.

The number of humanities staff with doctoral level qualifications is 23, a similar number are pursuing doctorates.

While the postgraduate research student experience at the Institute appears positive, some difficulties were encountered: for example, there appeared in certain instances to be an onus on students rather than on staff to nominate specialists from outside the Institute who might be able to assist them in their research; and registration for a doctorate had proved difficult for one student with a masters qualification. On the whole, however, students appeared to have easy access to supervisors and the level of support was high.

The development of a methodologically exacting BA dissertation is perceived by the research students from Waterford Institute of Technology as very positive in terms of preparing them for doing research.

Graduate recruitment appears appropriate – not ‘all qualified comers’ are accepted and there appears to be an effort to maximize numbers from outside Waterford Institute of Technology. Staff appear not to be afraid to direct potential research students to other more appropriate institutions of higher education in cases where they consider themselves unable for whatever reasons to take on the research supervision of individuals. This displays a high level of professionalism and attention to quality.

38. Waterford Institute of Technology might need to standardize research student teaching hours: six hours, depending on student and stage of progression may be too many notwithstanding the relative scarcity of funding for humanities research students.

More specific comments in respect of the individual disciplines are set out in the following paragraphs.

Legal Studies

In law the research profile demonstrates a commitment among several members of staff working in the subject area to producing peer-reviewed research at national level. Evidence of current research at international level is somewhat limited, but this is not surprising given that the development of a research culture is still at a fairly early stage.

In the area of legal studies, the research profile is concentrated among a fairly small core of staff. The focus is mainly on Irish legal practice, but members of staff are clearly looking to broaden this profile. There are references in the written submission to interaction with the professions, participation in national and international conferences and links with other institutions. It would have been helpful if such matters were presented in more detail in the submission: in this regard, the written submission did not perhaps do justice to the full range of the activities of staff within the subject area.

Nonetheless, the assessors were satisfied in the course of the visit that accreditation is merited within the subject area at masters level in this case.

Finally, it is noted that although the written submissions were reasonably comprehensive and gave a useful introductory insight into the work of the Institute, it was only in the course of the visit that the experience and enthusiasm of staff and students became fully apparent.

Sport/Health behaviour related

It was noted that the area of sport and health behaviour research, successes had been achieved in recent years in securing funding for research, and staff need to be commended for this. However, the continued challenge is to translate the data generated through research into peer-reviewed publications in journals of international standing. The Centre for Health Behaviour Research recognizes this as a challenge, and has identified it as an area for development as part of its strategy. The Institute is strongly encouraged to increase the journal publication rate.

Modern Languages / Languages Tourism Heritage at Waterford

There is now in Modern Languages / Languages Tourism Heritage at Waterford Institute of Technology an actively supportive environment, with support coming, (i) in tangible form from the top: the Head of School gives the impression of combining a clear sense of vision for Humanities with a firm understanding of potentiality and limitations, while heads of department appear most eager to help, sensitive to need and in general realistic about the situation on the ground and (ii) through the evident intellectual energy and generally well-focused enthusiasm of staff themselves. These are professionals who really are working together.

Regarding leadership, in Modern Languages the situation is very 'democratic', partly because, despite the very satisfactory level of higher-degree qualification of staff, they have not had a great deal of experience of research supervision. The assessors found it very positive that the staff were quite un-defensive and were impressed in observing how more established staff (with a far less impressive record of publication than the sector's one outstanding young researcher) interacted with him in providing academic leadership.

Qualification levels of staff in Modern Languages (ML) are very satisfactory, with nearly half the research active staff already holding PhDs or about to complete, in the appropriate areas. The record of acquiring dedicated research funding from the EU programmes (Lingua et al) is impressive. Although the sums may not be large in most cases, the resulting research spin-off and the networking are highly important for what the ML staff are doing and planning in the research area. Experience in research supervision is less strong in ML, not least because staff have (rightly), been involved in building up BA programmes and currently designing taught Masters (already submitted for approval). The systematic approach they have taken gives confidence that they can be trusted to supervise appropriate research to completion. Those theses which

assessors did discuss with the supervisors seemed satisfactory. The supervisors were involved with colleagues in related areas (i.a. in the UK) in a meaningful way (attending group meetings) with the specific intention of upgrading their own supervisory skills.

Modern Languages in Waterford Institute of Technology has a large service element, which staff in ML have translated into a research field (transferable language skills, language in the workplace etc..)

At a more general Humanities level, and specifically with regard to Heritage and Tourism, the function of the Research Centre for Newfoundland and Labrador Studies became clear after the experience of the site visit. There is incipient but real collaboration at research level, in terms of research students and their supervisors in both directions. The anthology project, while rather more data collection than critical research, functions as a kind of building block for more ambitious work of textual criticism and commentary. Furthermore, the exchange may well result in a tangible 'product' attracting US and other tourists interested in heritage and roots in the area and in Ireland in general. While this is all rather incipient, the activity is both focused and worthwhile.

Social studies

There is evidence that there is an active, supportive academic and research community in the subject area. It is noted that the staff have very valuable contacts with service providers; however, it would be beneficial to further develop collaborative projects with staff in other third level institutes.

39. The Institute is encouraged to address this issue to engender collaboration in relation to producing more work publishable in peer reviewed journals and 2) enhance the availability of expertise to research students.

Art

Information in respect of the supervision of MA students is presented in the submission documentation. In some cases the research is theoretical and the supervision appropriate. However, in some other specified cases the research is practice-based. Obviously, a practitioner or a team that includes a practitioner should supervise a student engaged in practice-based research. Practice-based research students have the right to expect supervision by practitioners who have a record of national and international exhibition at peer reviewed /rated venues which hold critical standing in the specialist press. This is not currently the case at Waterford Institute of Technology in art.

There is insufficient evidence of relevant expertise at the appropriate level in contemporary art practice being available to practice-based students at Waterford Institute of Technology.

The plans outlined in the submission refer to provision of practice based research degree programmes: if the Institute wishes to continue to offer practice-based research degree programmes it is necessary that the above problem be resolved prior to accreditation.

40. One way of addressing the problem would be for the Institute to establish formal links with a suitable institution and to arrange for co-supervision by appropriate practitioners. This point was raised during the site visit and the Head of School spoke of the Institute's willingness to establish links with other institutions and universities.

Music

In this area it is clear that there are excellent, well-motivated staff here, most with national (some with international) reputations. Composition is clearly a great strength and students testified to the significance of compositional activity within the institute and its influence in the outlying community. It is clear that Waterford's musical reputation is very strong in the southeast of Ireland. Irish traditional music is obviously another strength, giving the Institute a natural connection with scholars and institutions throughout the country. There is also a strong bias towards eighteenth-century studies which again show links with the national and international

community. Students generally seemed well-supported (the part-time student interviewed less so) and clearly held the staff in very high regard.

While the music provision very clearly deserves the accreditation that has been applied for, the staff might like to think of ways they could prepare for accreditation at doctoral level, something they will surely desire and deserve in the future:

41. the approach to musicological method and study could be brought closer to the international discourse that has been developing in the US, UK and several parts of Europe, namely, a stronger emphasis on criticism, questions of culture and historiography etc. While it would be unwise to embrace trends just because they are popular, and perhaps against the better inclinations of some of the staff, there is much that could be done with more intellectual and methodological contact with other staff in the humanities.
42. The dissertation titles are certainly adequate at masters level, but the research questions could be more focussed and critical if they are to result in PhD study. Many MA titles address a particular repertory or area without indicating any specific 'thesis' or problem to be addressed. The comparison of most music titles (composition excepted) with those in the rest of the school is telling in this regard.
43. The music unit might consider developing a masters degree with more taught elements, perhaps beginning with the skills specific to the existing staff: e.g. methodology and historiography of traditional music study, eighteenth-century source studies or analytical approaches. This could be attractive to students seeking specific skills, and it would also be a good way of introducing and inculcating research methodologies relevant to doctoral study early on in the programme.

Is there evidence of academic guidance, authority and leadership?

Virtually all the subject areas have leaders who have both personal authority (clearly evident from meetings with staff), vision and research experience.

In some areas of the humanities, it may be the case that the younger staff are more aware of the modern research questions than their elders, but all appear greatly to respect the latter for their generous encouragement and for their leadership in the community of staff, students and professionals outside the Institute.

Two issues for further attention came to light:

44. There is a need for improved evaluation of research supervisors; there appeared to be some lack of clarity in procedures and arrangements for the evaluation of research supervisors.
45. There is a need for absolute clarity in arrangements relating to the transfer of students from masters level to doctoral level.

Are there procedures for the planning and monitoring of postgraduate programmes of research within the discipline area?

Records are available on completion rates over time.

Is there specialised training dictated by the discipline and the nature of the research being undertaken?

46. There was clear evidence of an organized programme of postgraduate training across the disciplines in methods of bibliography, criticism etc. However, it would appear that there is scope for improving discipline specific training for research students in some areas.

In music there is particularly thorough training in techniques of composition, with many visiting composers and a dedicated festival week.

Are there staff who:

are willing to lead research programmes?

There is a sufficient number of staff willing to lead. Moreover the School is in principle realistic about whom they should be encouraging and whom they should direct elsewhere (beyond Waterford Institute of Technology).

are sufficiently qualified to the level of the programmes of research for which accreditation is being sought?

At first, it seemed that there were not enough staff with doctorates and masters degrees to cope with the influx of PG students. However, the programmes are well organised, using the most qualified staff to supervise research students.

have prior experience in the supervision of research students to successful completion?

Obviously, some staff have more experience than others, but the collegiality of the school is exemplary and it is clear that those who are new to supervising are given excellent mentoring and support.

are engaged in research, advanced study and other activities relating to practice in the subject or discipline area concerned?

Most staff supervising research students are engaged in research.

In music, all staff are active to some degree, and there are particular strengths in composition, traditional Irish Music and eighteenth-century studies. Virtually all music staff have doctorates.

Assessors were positively impressed by the fact that the Modern Languages (ML) group planning one of their main research projects is doing so as a consortium with other ML departments in the IT sector. This is both sensible and timely, given the service character of so much of their work and the need to legitimize their activity in a technologically orientated third-level Institute. One of the areas they have chosen is an important research priority in Ireland, namely the relationship of methodology and materials between the various levels (primary, secondary, tertiary) of language acquisition.

In Law there is a strong core team of staff demonstrating a willingness to take the initiative in this regard; there are several staff who are qualified to masters level (or beyond) and on the papers presented, there are two members of the current staff who have supervised at masters level to successful completion, but this may understate the true position. As stated above, there is a developing research profile; there is also evidence of engagement with legal practice, both in terms of staff involvement in practice and practice-oriented research.

It has already mentioned that the social studies group need to establish strong and active links with academics in other third level institutions in order to increase availability of expertise to research students.

47. In the area of applied arts it seems that students themselves have to identify specialists who they may need to access and then pursue this with their supervisor. In itself this is not a problem but it may be beneficial to establish more robust and formal arrangements to facilitate such relationships, perhaps in the form of an external or a second supervisor.

Are there adequate physical resources as well as technical and administrative support structures and attendant staff appropriate to the research being undertaken?

Extensive questioning of students revealed that the Institute is committed to a high level of support through the library, in terms of its physical holdings, its subscription to a wide range of electronic journals and other electronic resources. There is also an unusually generous level of Inter-Library Loan support, excellent ICT support, with dedicated personal computers as already noted, together with an unusually generous photocopying allowance for students who also engage in some teaching within the Institute. Taken together, this level of support provides an excellent physical environment in which research can flourish. While there are clearly some library space and accommodation issues for research students at the College Street campus of Waterford Institute of Technology (time constraints did not allow the Humanities panel to visit that facility), these are actively being addressed by the senior management of the Institute and promise to be resolved during the course of the current academic year.

Some students talked enthusiastically of how they share office space with their supervisors and as a result have continuous access to their supervisors. In the long term this might create pressures both on staff and students but particularly on staff.

Are there seminars, both focused and interdisciplinary, to facilitate the dissemination and exchange of the fruits of research, enabling peer review and quality assessment?

Some areas offer their services widely across the department (law and history, for example) and there are regular efforts to organise seminars and to draw in outside experts.

Research students in the Humanities appear to be encouraged to attend seminars/research training in the Business School relevant to their area.

Within legal studies, there is evidence of a healthy and productive engagement with other disciplines, which could be exploited even more effectively in the future.

Are there opportunities for interaction with other postgraduate research candidates and their supervisors, both within and outside the institution and opportunities, where appropriate, for collaboration with other providers of higher education, industry and commerce and the public sector etc.?

While there is some interaction outside the Institute, this appears largely to be at an early stage of development. However, staff seem aware of the need to network more widely externally and moreover. The commitment of the Institution as a whole to fostering links with other institutions and sectors is commendable.

It will be important for the development of research in the School of Humanities that collaboration is systematically developed and real.

The high level of fluidity of interaction internally within the Institute has already been mentioned. A particular strength of such a diverse school is the opportunities that this provides for interdisciplinary collaboration, particularly in areas that traditionally were quite separate, such as law and social care, and nursing and art.

48. It is recommended that that health professionals be encouraged to network with universities and other higher education institutions as well as NGOs and Health Boards.

Are there procedures for the implementation of quality assurance within the schools / departments concerned?

Departmental Research Committees comprised staff and research students monitor standards and progress, and addresses difficulties that arise.

49. There appeared to be some lack of clarity in procedures and arrangements for the evaluation of research supervisors.

In respect of Modern Languages there are formal procedures, most recently established. It is difficult to assess how well they will work in practice, largely because of the relatively small number of research students in the ML area to date. However, the professional and personal qualities/ qualifications of staff inspire confidence.

2.7 Accreditation criteria in respect of Business

The criteria for accreditation are set out in the Appendix B to the HETAC document entitled *Validation process, policy and criteria for the accreditation of providers to maintain a register for a specified research degree in a specified discipline area 2003*. Each criterion is addressed in the following sub-sections. In reaching its decision the Panel considered each criterion and in *some cases* made specific comments: these are set out below.

The Institute applied for accreditation to maintain a register at masters degree level in business.

The accreditation document was perfectly adequate and assessors were positively inclined towards accreditation after reading it. However, the experience of the assessors during the visit was that the School of Business at WIT was far more impressive than it appears in the submission document. The progress that has been made within business studies at Waterford Institute of Technology is very substantial. The leadership, particularly the Head of School, has a very strong reputation and this leadership is well respected amongst colleagues. In coming years it will be important to balance enthusiasm with investment in order to avoid burnout.

There is no doubt that Institute meets the criteria to be accredited to maintain a register at masters level (level 9) in areas within the School of Business *reflecting the expertise of the current research-active academic staff*. There is a case for moving towards accreditation at the doctoral level sooner rather than later. This is particularly so in comparison to other business schools in Ireland.

Research environment : Is there an active, supportive academic environment and research community in the subject or discipline area for which accreditation is sought demonstrated by traditional research performance indicators?

The documentary evidence and site visit, confirm that in the Business School an active, supportive research environment and community is developing. There are some very impressive researchers in leadership positions, completion rates good and there is an upward trend in publications.

Also, that there are sound sources of academic guidance, authority and leadership available to staff and students.

In general, the procedures for implementing quality assurance and the planning and monitoring of postgraduate programmes of research, appear to be adequate and aligned with overall relevant Institute policies and procedures.

With regard to physical resources, these are adequate and plans are underway for a new facility. Neither staff nor students made any complaint about the resources available to them.

Assessors were impressed by the research seminar series, and especially, by the calibre of recent speakers, a number of whom have been drawn from the international research community. Students are invited to these seminars and are free to discuss their work with visiting speakers.

Some staff at the School belong to research networks and have international contacts. In addition, many have strong connections with industry and commerce. This, together with the seminar series, means that students have opportunity for interaction with a variety of potentially useful individuals and institutions.

The submission document gave rise to concerns in respect of critical mass. For example, only half of the School's staff are currently involved in the supervision of research students, and the experience of most of these is quite limited. Moreover, although quite a number of staff are working towards a postgraduate research qualification, relatively few staff members currently possess such a qualification – while a number of staff have Masters degrees, in some cases these are taught Masters, not research Masters. Only a small number of staff have doctorates – which are useful in relation to supervising research Masters students as well as PhDs. Also, although many staff appear to present at conferences and similar fora, some of which are international, this activity does not seem to be developed into papers for publication in high quality academic journals. However, it is evident that the staff are strongly committed to raising the School's research profile.

Conversations with students and staff revealed very sound relationships between both parties and, indeed, there was a strong impression that students and staff perceive themselves as being involved in collaborative learning, because so many staff members are themselves working towards research degrees. It was very clear that research students believed they were receiving a high quality service.

There was evidence also of leadership by example from the Head of School who is held in high regard by both staff and students. Some members of staff accepted the 'critical mass' problem, but seemed confident that, as more and more staff achieve their research degrees and others are drawn into research activity, including the supervision of research students, this problem will diminish over time. Their optimism and enthusiasm for what they do are infectious, although the assessors believe that they will find the next few years arduous.

The research-active staff at the Business School are currently on a steep learning curve; already they are making progress on the research front and in a few years' time, after many of them have completed their research degrees, it is expected there will be significant improvement in all the research performance indicators.

Currently students have very positive perceptions of their learning experience and of the quality of the research training they are receiving.

The Institute's interaction with the business community particularly in the South East Region was commendable and students are able to tap into a wider, practical research community in the pursuit of their masters degrees.

Is there evidence of academic guidance, authority and leadership?

There was certainly evidence of academic guidance and leadership within the business school.

It coordinates with and benefits from strong leadership and direction at the centre of the Institute.

While in the formal sessions with the academic staff, these qualities were not clearly demonstrated, it became apparent talking directly to the students that the academic staff were very capably guiding them in terms of the direction their research should take.

It is also noteworthy that the head of department and the head of research are good role models to follow in terms of research. The Head of the of Business School has a strong academic record and clearly enjoys the respect and support of his staff and students.

The Business School, with the support of the Institute centrally, has a clear and feasible plan for the academic and research development of its staff.

50. The primary focus is on the acquisition of doctorates by all academic staff involved in supervision. This is an obvious priority.

Are there procedures for the planning and monitoring of postgraduate programmes of research within the discipline area?

51. This is an area where there is some room for improvement. During the visit staff spoke of five core areas of competency that they were pursuing but at least one assessor wasn't wholly convinced that this was driving a structured planning programme around what research projects would be undertaken and what projects would be rejected.

When interviewing the students there were certainly some examples where the research projects being pursued were definitely influenced by the overall strategic requirement of the department (e.g. in the Waterford Crystal centre there was a definite synergy between the projects the students were working on and the overall research agenda of the centre). In other areas this link was not as evident e.g. Finance department.

Notwithstanding this, it appeared that the Business School was working hard to formalize an approach for planning research and at a philosophical level bought into the need for structure, including the need to be brave enough to reject project proposals that didn't fit into the grand plan.

On the monitoring side, it appeared that the research programmes were well monitored. The business students themselves all talked about having a clear project schedule set down by the supervisor with key milestones. Formal meetings are conducted every two weeks and progress against the schedule is monitored at these sessions. What was equally welcome was the informal monitoring that went on between sessions. The students have easy and ongoing access to the supervisor(s). In the majority of cases each of the masters students had two supervisors working with them on their research programme. Indeed it became clear during the sessions that the monitoring is managed very well between the two supervisors – the supervisors themselves talked of the benefit of having a colleague available to objectively monitor the student in instances where their own personal opinion on an element of the research project may be clouding judgment.

Is there specialised training dictated by the discipline and the nature of the research being undertaken?

There is a training programme in place for researchers (this includes induction training, PC skills, library information and research modules) and all of the students encountered had completed this. It appeared also that if a student requires additional specific training that the Institute will fund this.

The specialized training cited in the discussions with the students and staff related primarily to taught research methodology courses across a 22 week period within Waterford Institute of Technology. The Waterford Institute of Technology written submission referred also to sending students on external research methodology courses. All students encountered referred to the internal methodology course.

The existence of a taught masters allows for directed learning for research students. Perhaps the structured provision of advanced specialised training is something that might be explored in the context of further developments.

Are there staff who:

are willing to lead research programmes?

Overall it was clear that staff were very keen to lead research programmes. What was very noteworthy in Waterford Institute of Technology was the overall morale amongst the staff – their enthusiasm for their work was palpable and their eagerness to drive research programmes was very evident.

-are sufficiently qualified to the level of the programmes of research for which accreditation is being sought?

are sufficiently qualified to the level of the programmes of research for which accreditation is being sought?

Yes for the supervision of research at MA level.

52. The need to upgrade the research-active academic staff to Ph.D. level has been recognized and is in process of being achieved.

have prior experience in the supervision of research students to successful completion?

Yes. The number of experienced supervisors is increasing steadily. There is also evidence of mentoring of novice supervisors, which is to be commended.

are engaged in research, advanced study and other activities relating to practice in the subject or discipline area concerned?

53. The main weakness here revolves around a lack of published articles by staff in leading academic journals. However the majority of staff is engaged in undertaking PhD programmes and in this regard, engaged in research and advanced study. Waterford Institute of Technology's involvement, as cited earlier, with industry is very impressive and in this regard the staff score highly in terms of their participation in activities relating to practice in the discipline area.

Business is a large integrated school which has two departments. The degree of integration and common purpose is both genuine and rare to encounter in Ireland. Within this there is a critical mass of researchers who are very active in research and supervision. For purposes of further building critical mass the researchers are members of a small number of research centres.

Are there adequate physical resources as well as technical and administrative support structures and attendant staff appropriate to the research being undertaken?

The business school scores very highly here. The physical resources (e.g. library) were mentioned particularly by the students – in some cases the physical resources available had a significant influence on the student's decision to pursue a masters by research in Waterford Institute of Technology. The resources for Business Studies in the Library are excellent. Going forward it would be useful to enable the school to develop an integrated footprint within the building.

In terms of facility and administration support the students are extremely well equipped to research.

Students are also supported in attending conferences, travelling to organization of interest etc as the institute pays travel expenses for them.

While staff, on paper, seemed to be somewhat stretched in terms of workload, in reality there was no sign of any shortage of staff support available to students– one example being, as cited earlier, the presence of two supervisors for each research student.

Are there seminars, both focused and interdisciplinary, to facilitate the dissemination and exchange of the fruits of research, enabling peer review and quality assessment?

Seminars by both Waterford Institute of Technology lecturers and international lecturers appear to be regularly organized. There is also a positive trend in terms of the numbers of seminars being held year on year. While only 6 were held in 2003, 12 were held in 2004. *The Department and School are very active in this respect.* The other factor is that the institute has hosted two relevant conferences in the past number of years and this provides a good opportunity to benchmark and share ideas.

In addition students and staff are facilitated in travelling and maintaining active contact with other research centres and learned societies.

Are there opportunities for interaction with other postgraduate research candidates and their supervisors, both within and outside the institution and opportunities, where appropriate, for collaboration with other providers of higher education, industry and commerce and the public sector etc.?

The school has established a number of links within industry and this has resulted in the development of centres of excellence and the provision of funding. One of the research centres has attracted as stated elsewhere, has secured significant funding from Waterford Crystal. There is strong support, including financial support, and encouragement and support for the development of networks.

There are certainly opportunities for interaction with other postgraduate research candidates and their supervisors *within* the institution.

54. There was less formal evidence of interaction with other research candidates and supervisors outside Waterford Institute of Technology. The staff cited links between Waterford Institute of Technology and other third level institutions and the availability of supervisors from other institutions to work with research students where appropriate. Amongst the students encountered (according to one assessor) their interaction at this level was all within Waterford Institute of Technology, not outside the institution.

However what was impressive was the interaction evident between research candidates and the business world. For example, the finance students and the Waterford Crystal Centre students have ongoing interaction with industry in the pursuit of their masters degrees.

Are there procedures for the implementation of quality assurance within the schools / departments concerned?

The main procedure articulated revolves around regular staff reviews of projects undertaken by the students where students present to the school / department staff in order to monitor quality of the projects undertaken. The procedures were detailed in the submission document.

Discussions with the Heads of School and Department, staff, and research students satisfied the assessors that the procedures and processes work well in practice.

3 PANEL

The panels visited Waterford Institute of Technology on 11 January 2005. The constitution of the evaluation panels follows:

Chairman of both Panels

Professor Eda Sagarra (Trinity College Dublin)

Quality Assurance Expert

Dr Mark Fredericks (Nederlands-Vlaamse Accreditatieorganisatie)

Science and Engineering Panel

Professor Chris Dainty (NUI Galway IRL)(B)

Professor Luc Moreau (Univ of Southampton)

Professor Rahim Tafazolli (Univ of Surrey)

Professor Paddy Nixon (Strathclyde University and currently UCD)

Dr Norman Smith (Kings College London)

Professor Richard O'Kennedy (Dublin City University)

Professor Peter Stockley (University of Leeds) *Professor Peter Stockley received the submission material and prepared a preliminary report but was unable to attend the site visit owing to an unexpected occurrence.*

Professor Gerard Hurley (NUI Galway)

Professor Soren Nielsen (Aalborg University)

Professor Henry Rice (Trinity College Dublin)

Dr Dominic Murphy (University of Limerick)

Business and Humanities Panel

Professor Brian Maguire (National College of Art and Design)

Dr Abbey Hyde (NUIG)

Professor Maurice Whitehead (University of Swansea)

Dr Patricia Kennedy (UCD)

Professor John Butt (University of Glasgow)

Professor Sean Doran (Queen's University Belfast)

Professor Tom McCarthy (Irish Management Institute)

Dr Frances Hill (Queen's University Belfast)

Professor William John Morgan (University of Nottingham)

Helen Barry (Recent Graduate)

Maria Mahon (Irishjobs.ie)

with

Dr Peter Cullen and Mary Sheridan *Higher Education and Training Awards Council.*

The Science and Engineering Panel was divided into three groups: (A) Biotechnology; Environmental science; Separation Science etc.; (B) ICT; Photonics; Information Systems; Engineering etc.; and (C), Electronics, Mechanical and Manufacturing Engineering, IT and Construction Management etc..

The Business and Humanities Panel was divided into two groups: (D): Research areas within departments in Humanities; and (E): Research areas within departments in Business