Report of the Third Quinquennial School Review of the School of Chemical and Pharmaceutical Sciences

1   Introduction

The review of the School of Chemical and Pharmaceutical Sciences was broad-ranging, focusing on strategic issues relating to the School and its overall role and performance. The review evaluated the role and performance of the School over the previous five years and its plans for the next five years.

2   Summary of Main Recommendations

The Review Panel was informed by the self-study provided by the School, which was a detailed and constructive document, to which all members of staff contributed. The panel was facilitated by the open and constructive dialogue with the management, staff, students and alumni of the School.

Areas for Commendation

The Review Panel would like to commend the School on a number of areas of strength and examples of good practice:

- Positive Culture

- Innovation in Chemical Education

- Good engagement by staff in the School with both the staff development and learning & teaching programmes and events available and the sharing of good practice between staff

- High Standard of Documentation and approach taken to prepare for this review, which included all staff within the School

- Introduction of an Extended Induction programme

- Build your Brand Initiative

- Staff's proactive approach and collegiality and the strong working relationships which have been developed within the College

- Approach taken to staff inductions and introduction of a staff buddy system

- Model used to supervise industry based PhD students overseas
- Community based learning Initiatives

Recommendations:

The Recommendations of the review panel are as follows:

Strategy

- Develop an internationalisation strategy that consolidates the various international activities that the School undertakes.
- Develop a specific strategic plan to formalise the activities that the School undertakes with their alumni and to provide a consistency of approach.
- Develop an Integrated communications strategy for all key stakeholders, emphasising the School's uniqueness and differentiation; global recognition for excellence; one which identifies that the graduate attributes are industry relevant.

School Management

- Reconfigure administrative structures and processes to support the academic mission.
- Assign Senior Lecturers posts on the basis of merit rather than on the basis of student numbers within the School.
- Address the ongoing issue in relation to the length of time taken to fill vacancies within the School.
- Keep under review the optimal assessment schedule in terms of both staff and student workload.
- Put in place leaner ordering processes which allow for sign off directly by Technicians for materials up to a certain value.
- Provide a mechanism so that new academic staff do not undertake a full teaching load in their first year of appointment in order to facilitate professional research development and initiate an independent research programme and apply for external research funding, progress on which can be reviewed at the end of year 1 probation.

- Put in place mechanisms to capture gender metrics in relation retention and performance data so that this can be analysed in advance of applying for an Athena Swan departmental award. Consider the student exit interviews, which are conducted by the retention office, in terms of gender.

- Liaise with the University to revise the current resource allocation model in relation to Globalisation, specifically the allocation of International student fee income, to incentivise the recruitment of International Students at School level. Consider the Programmes' competitive positioning and undertake further benchmarking against national and international competitors, highlighting the unique selling point of each programme for promotional purposes.

- Liaise with the Learning, Teaching and Technology Centre (LTTC) and other appropriate services when directing staff on the appropriate use of the VLE. This should be done without compromising student attendance in class.

- Stagger the rotation of the membership of Advisory Board over a 3-5 year period.

- Develop standard operating procedures for specific administrative functions, including writing grant applications.

Feedback Mechanisms

- Extend the culture of feedback within the School and encourage all staff to provide timely and useful feedback to students.

- University should review the Q6A and Q6C feedback system and implement an anonymous on-line student feedback system that facilitates students to provide feedback

Induction Programmes

- Continue to develop and extend the Induction Programme, for example it could include how to manage your on-line presence, academic writing, information literacy and cultural awareness.

- Consider providing an induction into second year which includes details on the academic challenges students will encounter.

- Introduce a formal induction process for research students that provides an overview of current research projects and expertise, clarity on the supports available to students and the processes with which students need to comply.

Industry Placements

- Consider supplementing the CV template used by students seeking work placement to include details of any College Health and Safety training undertaken, details on experimental training undertaken and any vaccinations that the student has received.

- Review the processes for collecting feedback from industry on the student's Work placement performance to ensure that feedback is received from all supervisors and to amend the feedback form for industry supervisors to include a question on possible knowledge gaps.

Undergraduate Teaching Programmes

- Develop mechanisms to facilitate sharing of good practice between staff and develop teams of excellence.

- Consider incorporating industry briefings into the 2nd year of the Undergraduate programmes.

- Further consider the undergraduate students' project specifications, organisation and supervision.

- Continue to review the model used to assess laboratory reports.

- Introduce a formal review meeting with the technicians and technical officers to discuss how the laboratories have operated and the changes proposed for future years.

- Publish examination timetables earlier

- Liaise with the School of Physics, Optometric and Clinical Sciences to review DT227 with specific consideration of how the curriculum in the final year can include more detailed aspects of Nanomaterials and Synthesis, Polymers and Quantum Chemistry.

Research Programmes

- Identify the barriers and enablers for research and engage with university management to remove barriers and put in place the supports that would allow the research mission of the School to operate and flourish.

- Offer a Pension scheme to Postdoctoral Researchers in line with that offered in other Irish Universities.

- Provide a parity of recognition within the workload model for research supervision which is undertaken with students who are based remotely.

- Liaise further with the University, to have up to 6 hours a week demonstration / teaching duties for internally funded research students included as part of the PhD programme.

School Relocation

- Liaise with the Migration team, to put in place a contingency plan for the equipment that fails when moved, especially for Nuclear Magnetic Resonance (NMR) and Liquid Chromatography Mass Spectrometry (LCMS).

Programme Portfolio:

The Review Panel recommends to Academic Council continuing approval for the following programmes:

DT698 CPD Certificate in e-Biopharmachem, 15 ECTS at level 7 of the NFQ, part-time

DT758a CPD Certificate in e-Validation, 15 ECTS at level 7 of the NFQ, part-time

DT291 BSc in Manufacture of Medicinal Products, 60 ECTS at level 7 of the NFQ, part-time full-time and related CPD Certificates.

DT261, BSc Medicinal Chemistry and Pharmaceutical Sciences, 180 ECTS at level 7 of the NFQ.

DT203 BSc (Hons) Analytical Chemistry (Environmental, Forensic, Pharmaceutical), 240 ECTS at level 8 of the NFQ, full-time

DT299T BSc (Hons) Chemical Sciences with Medicinal Chemistry, 240 ECTS at level 8 of the NFQ, full-time

DT233, MSc Pharmaceutical Quality Assurance and Biotechnology, 90 ECTS at

level 9 of the NFQ, full-time with related exit award of Postgraduate Diploma in Pharmaceutical Quality Assurance and Biotechnology, 60 ECTS at level 9 of the NFQ.

DT237, MSc Pharmaceutical Quality Assurance and Regulation, 90 ECTS at level 9 of the NFQ, part-time with related exit award of Postgraduate Diploma in Pharmaceutical Quality Assurance and Regulation, 60 ECTS at level 9 of the NFQ.

DT9279, MSc Pharmaceutical Validation Technology, 90 ECTS at level 9 of the NFQ, full-time with related exit awards of Postgraduate Diploma in Pharmaceutical Validation Technology, 60 ECTS at level 9 of the NFQ and Postgraduate Certificate in Pharmaceutical Validation Technology, 30 ECTS at level 9.

3   The Purpose of the School Review

The focus of the School Review is in respect of the School as a whole. The review visit took place over a two day period on 22nd and 23rd May (see appendix 1). The main purposes of the School Review were to evaluate:

- the School's quality assurance and enhancement procedures;
- the School's approach to programme design and development, having due regard to the influence of bodies representing students, employers, community and the sector;
- the School's learning, teaching and assessment strategy;
- the learning environments of the School;
- the School's Research Strategy;
- staffing including academic, administrative and technical;
- staff development activities within the School;
- the School's strategic plan which is linked to TU Dublin's strategic plan and the targets therein;
- the quality of service provision to students as measured against the criteria in the Student Charter;
- level of engagement.

4.1   Overview of Technological University Dublin

Technological University Dublin is Ireland's newest university and is a comprehensive multi-level educational institution, fulfilling a role both nationally and internationally in providing full-time and part-time educational programmes across the whole spectrum of higher education. It aims to achieve this in an innovative, responsive, caring and flexible learning environment. It is committed to providing access to students of all ages and backgrounds and to achieving quality and excellence in all aspects of its work. This commitment extends to the provision of research, product development and consultancy services for industry and society while continuing to have regard to the technological,

commercial, social and cultural needs of the community it serves.

Technological University Dublin comprises three Campuses: City (formerly Dublin Institute of Technology), Tallaght (formerly Institute of Technology, Tallaght) and Blanchardstown (formerly Blanchardstown Institute of Technology)

4.2   Background to the College and School

The College of Sciences and Health is one of four Colleges that comprise Technological University Dublin City Campus. The College is currently one of the largest providers of science graduates in Ireland, with the majority of graduates obtaining employment in the Agri-Food Sector, Pharmaceuticals, Information and Communications Technology and Health Sectors.

The College of Sciences and Health combines six Schools:

> School of Biological and Health Sciences
> School of Chemical and Pharmaceutical Sciences
> School of Physics, Clinical and Optometric Sciences
> School of Mathematics Sciences
> School of Computer Science
> School of Food Science and Environmental Health

The School of Chemical & Pharmaceutical Sciences was formed in 1988 from what had been a joint School of Biology and Chemistry. The School provides degree, postgraduate and short training courses in all areas of chemical and pharmaceutical sciences. The School has particular expertise in many aspects of forensic chemistry, environmental science, chemical technology and chemical and pharmaceutical analysis. Undergraduate teaching laboratories in these subject areas are complemented by a computer laboratory which provides the latest in education and training software. The School offers postgraduate programmes for the pharmaceutical industry covering manufacturing, validation and quality assurance. All programmes within the School have a strong practical bias which equips graduates with the skillset to operate across a broad strata of industries and other employment areas.
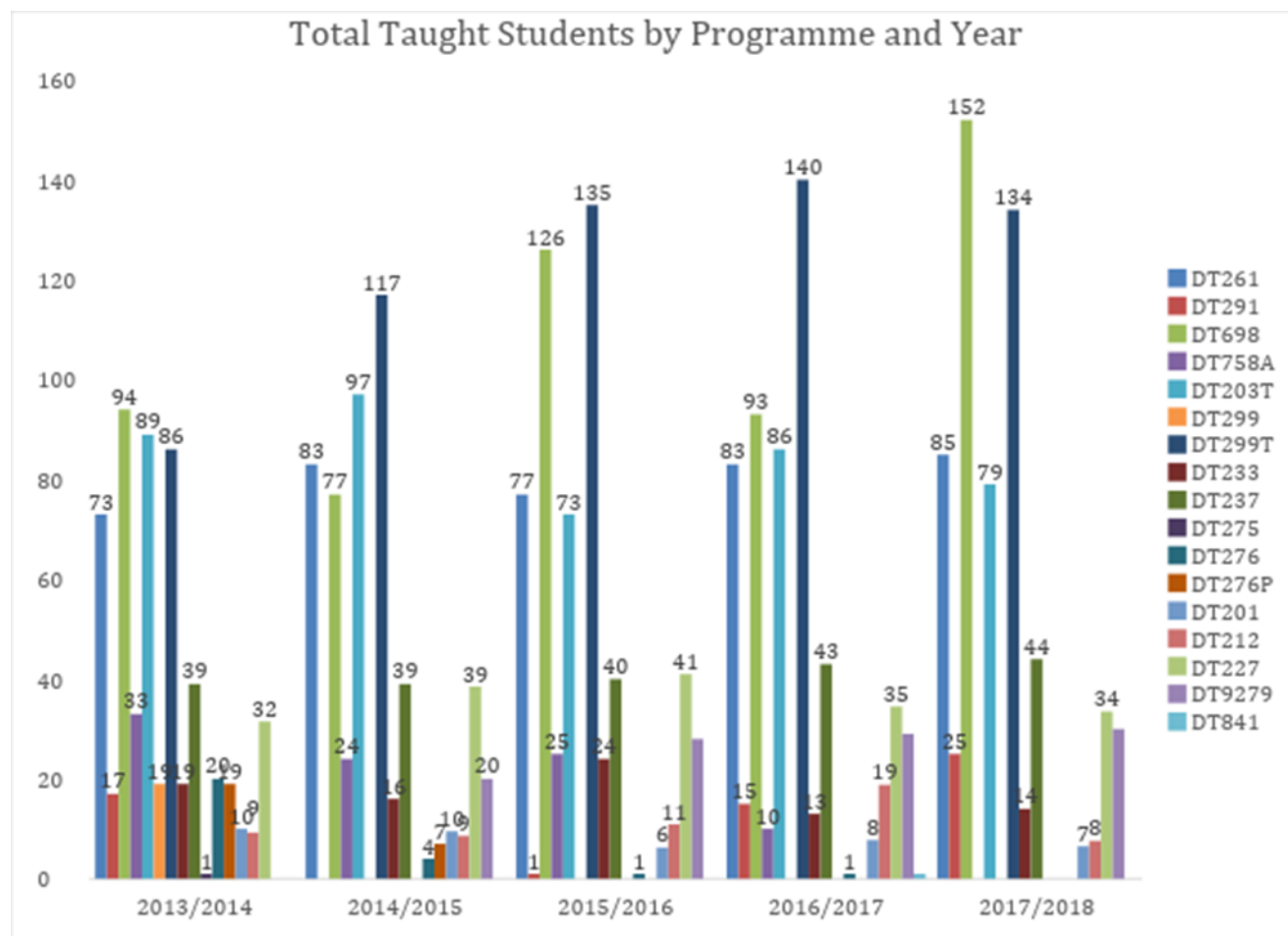
4.2.1 School Vision

"Leaders in Chemical and Pharmaceutical Sciences Education; Committed to Excellence in the provision of Accredited, Practice-Based, Teaching, Learning and Research relevant to employers and wider society."

4.2.2 Staffing

The School consists of a Head of School (SLIII), two assistant Heads of School (SLII), 1 Senior Lecturer (SL1), 13 Lecturers, 3 Assistant Lecturers, 4 hourly paid assistant lecturers, a Senior Technical Officer, 4 Technical Officers, 2 Technicians, 3 Lab Assistants and a School Administrator.

4.2.3 Student Numbers

Total Taught Students by Programme and Year

Legend: DT261, DT291, DT698, DT758A, DT203T, DT299, DT299T, DT233, DT237, DT275, DT276, DT276P, DT201, DT212, DT227, DT9279, DT841
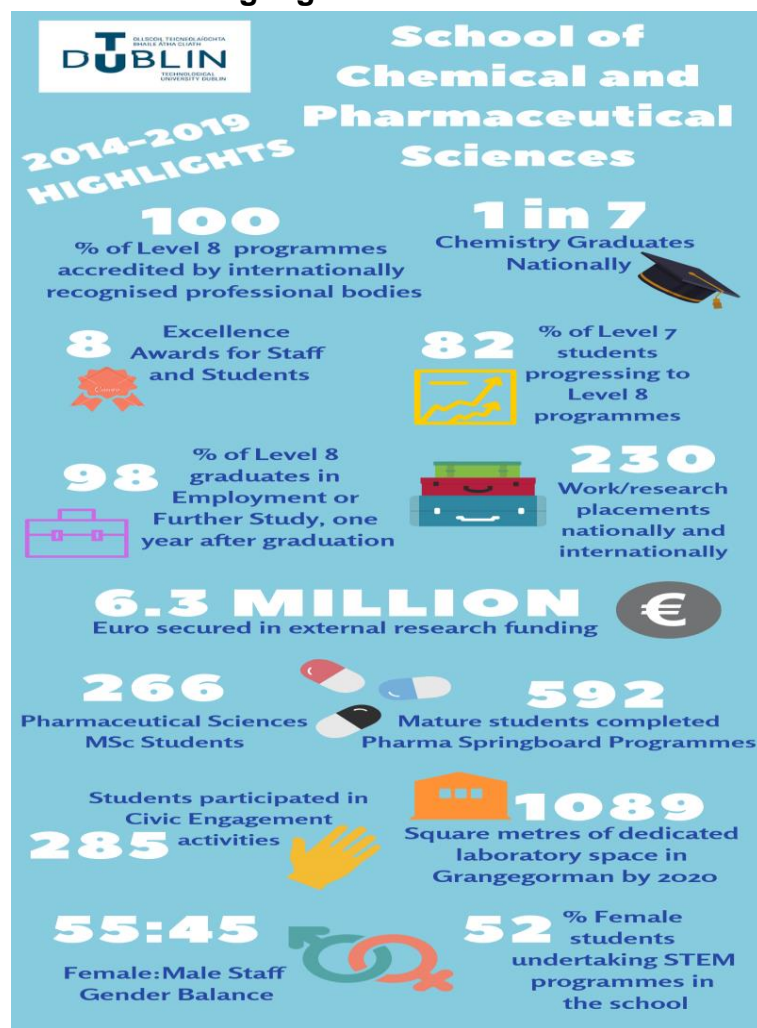
4.2.4 Research

The School has been engaged in research over the past 35 years and maintains an active research profile in a broad variety of areas such as environmental chemistry, medicinal chemistry, surface / materials chemistry, nanoscience and chemical education.

The School is committed to building its research and innovation capacity in several directed fields, forging useful and needed knowledge, enriching the profile of the university and addressing tangible challenges in new and ground-breaking ways.

4.2.5 School Highlights 2014-2019

School of Chemical and Pharmaceutical Sciences

2014-2019 HIGHLIGHTS

100 % of Level 8 programmes accredited by internationally recognised professional bodies

1 in 7 Chemistry Graduates Nationally

8 Excellence Awards for Staff and Students

82 % of Level 7 students progressing to Level 8 programmes

98 % of Level 8 graduates in Employment or Further Study, one year after graduation

230 Work/research placements nationally and internationally

6.3 MILLION Euro secured in external research funding

266 Pharmaceutical Sciences MSc Students

592 Mature students completed Pharma Springboard Programmes

285 Students participated in Civic Engagement activities

1089 Square metres of dedicated laboratory space in Grangegorman by 2020

55:45 Female:Male Staff Gender Balance

52 % Female students undertaking STEM programmes in the school

5   Key issues arising from the self-study

The Self Study documentation presented to the panel was comprehensive. The panel had informative and constructive discussions with the staff and students on the many key issues emerging from its consideration of the self-study and focusing on the key purposes of the School Review. These key issues are captured under the following headings:

1   Quality Assurance
2   Learning Teaching and Assessment
3   Learning Environment
4   External Engagement
5   Research

5.1   Quality Assurance

The panel was provided with documentation that demonstrates that the School takes a proactive approach to implementing the university's quality enhancement processes. This documentation included the programme committee meeting minutes, the external examiner reports, annual monitoring reports, statistical data and an update on how the School had addressed the recommendations arising from the previous School review. This proactive approach was also demonstrated in the thorough approach taken to the School Review Preparations. The School Review preparations were led by a Steering Committee and all members of staff were assigned onto a least one working group to develop one section of the report.

The panel discussed with the School, its approach to receiving and utilising student feedback. The School provided the panel with details of their analysis of the feedback received from the Irish Survey on Student Engagement (ISSE) and the initiatives that are being introduced in response to the feedback received. The School also reported that they receive good feedback from the periodic staff student feedback sessions that the School organises and that they feel this feedback is more useful than the limited feedback received via the formal feedback forms. It is the Panel's view that the Q6A and Q6C as currently operated by the School are not fit for purpose, thus the School has implemented alternative methods to obtain student feedback. The panel recommends that the University review this system and implement an anonymous on-line student feedback system that facilitates students to provide feedback on module and programmes that can be acted on.

5.2   Learning, Teaching and Assessment

5.2.1 Teaching Innovations

The School applies evidence-based teaching methods which include the application of chemistry and science to real world problems through context-based and community-based learning. The panel was particularly impressed by the community based learning

projects, which enable students to develop their employability skills - team work, planning, chemical health and safety, communication, civic engagement, information retrieval, and digital literacy (reflective blogs and online discussion boards) whilst providing a valuable service to community groups.

The panel was also impressed with the range of teaching innovations applied both in terms of the development of programme offerings for a range of target groups (School leavers, job seekers, part-time and online learners) and the range of teaching approaches applied, including context-based learning, mind map activities, community-based learning, authentic assessment, e-portfolios. The staff within the School have received a number of awards during the period of review that recognize their innovative approaches and commitment to enhancing teaching excellence within the School. To further grow this and embed these innovations across the School, staff experience should be shared with other staff members and teams of excellence developed.

One new initiative that the panel was informed about is "Build your Brand" which was piloted in 17/18 academic year with second-year students of Forensic and Environmental Chemistry (DT203) and Chemical Sciences with Medicinal Chemistry (DT299). In preparation for the workplace, the School developed a stepwise approach to the development of each student's personal brand as part of a structured programme of extra-curricular activities, events, and community engagement and included the preparation of an e-portfolio. This initiative received positive feedback from the students who participated on it and the School should continue its implementation.

5.2.2 Work Placement

There is a work placement opportunity on each of the School's honours degree programmes and as part of the preparation for this experience, the School arranges a career development and Curriculum Vitae preparation workshop. The panel recommends that the School consider supplementing the CV template used by students seeking work placement to include details of any College Health and Safety training undertaken, details on experimental training undertaken and any vaccinations that the student has. The School could also review the processes for collecting feedback from industry on student's

Work placement performance to ensure that feedback is received from all supervisors and to amend the feedback form for industry supervisors to include a question on possible knowledge gaps. The School should also consider incorporating industry briefings into the 2nd year of the Undergraduate programmes.

5.2.3 Retention

The panel discussed the School's approach to retention and commends the College for introducing an extended induction programme which is aimed at first year Undergraduate students and which has received good reviews. The panel recommends that the School continue to develop and extend the Induction Programme, for example it could include how to manage your on-line presence, academic writing, information literacy, cultural awareness. The panel noted that the School is also working to address progression issues in 2nd year of the programmes. The panel recommends that the School consider providing an induction into second year which includes details on the academic challenges students will encounter. The panel commends the extensive and ongoing activities undertaken to address these progression issues and recommend that the School keep under review the progression rates across all programmes. To assist this, the School should consider the Programmes' competitive positioning and undertake further benchmarking against national and international competitors, highlighting the unique selling point of each programme for promotional purposes.

5.2.4 Student and Staff Assessment Workload

It was reported to the panel that there are pinch points for both staff and students in terms of workload, the panel notes that the use of assessment schedules has facilitated some changes being introduced in this regard. The panel recommends the School keep under review the optimal assessment schedule in terms of both staff and student workload. Students would also benefit from receiving their examination timetable at an earlier stage.

It was clear to the panel that feedback is provided to students from assessment, and there are examples of best practice evident within the School, the panel recommends that the School further extends the culture of feedback within the School and encourages all staff to provide timely and useful feedback to students.

The panel discussed with staff and students the organisation and supervision of final year projects. The panel noted the benefit to students of utilising specialised research equipment for their research projects. The panel noted that there are a number of health and safety limitations on the use of specialised equipment by undergraduate students. The panel recommends that the School further consider the undergraduate students project specifications, organisation and supervision.

5.2.5 Laboratory Education

Each of the School's programmes contain a significant laboratory element and both students and graduates commented positively to the panel on the value of receiving this hands-on practical experience. There is a large assessment workload for both students and staff associated with laboratory practicals and reports. The panel encourages the School to continue their review of the model used to assess laboratory reports. The panel recommends that the School consider using graduate demonstrators, who are involved in the delivery of the laboratories, to assess and provide feedback to students on the laboratory reports, with academic oversight in order to ensure the quality. The aim of this would be to go someway towards reducing the workload on academic staff and enable them to spend more time engaging with research.

The Technical Officers, technicians and lab aides play a significant role in ensuring the smooth running of the School's laboratory sessions. The panel was impressed with the strong collegiate working environment that has developed within the School and the proactive approach taken by staff in the School to ensure the smooth running of the laboratories. The panel is of the view that this would be further enhanced if, at the end of the teaching term, there is a formal review meeting with the technicians and technical officers to discuss how the laboratories have operated and the changes proposed for future years. The operation of laboratories would also benefit if mechanisms were put in place to provide leaner ordering processes which allow for sign off directly by Technicians for materials up to a certain value. In addition, Technical support in the School is stretched and there is no cover if staff members need to take sick leave or other eventualities and this needs to be addressed.

5.2.6 Joint Programme

The School runs a joint programme with the School of Physics, Optometric and Clinical Sciences. The panel discussed the operation of this programme with both staff and students. The panel noted that the progression rate on this programme is lower than other programmes within the School. The panel also noted the feedback received from students on the chemistry content on this programme. The panel recommends that the School liaise with the School of Physics, Optometric and Clinical Sciences to review DT227 with specific consideration of how the curriculum in the final year can include more detailed aspects of Nanomaterials and Synthesis, Polymers and Quantum Chemistry

5.3 Learning Environment

It was reported to the panel that the University's City Campus is changing its Virtual Learning Environment (VLE) in August 2019. The panel noted that a number of members of staff within the School had participated in the pilot implementation of the new VLE and that they were impressed with the functionality that the new VLE provides. The panel encourages the School to proactively utilise the VLE to provide students with a range of learning opportunities. The panel notes the importance of student attendance and participation in classes and that the functionality on the VLE should be used to provide additional learning opportunities that compliments the face to face tuition provided. As such the panel recommends that the School liaise with the Learning, Teaching and Technology Centre (LTTC) and other appropriate services when directing staff on the appropriate use of the VLE and that this should be done without compromising student attendance in class.

The panel commends the School's work to date in relation to analysing the School's readiness to apply for an Athena Swan departmental award and the panel encourages the School to continue this work and submit an application. To assist this the panel recommends that the University put in place mechanisms to capture gender metrics in relation to retention and performance data so they can analyse this in advance of applying for an Athena Swan departmental award. The School should also consider the student exit interviews, which are conducted by the retention office, in terms of gender.

5.4   External Engagement

The panel noted the significant achievements of the School within the period under review. The panel discussed with both staff, students and management of the School, its role and unique features.   The School is engaged with a broad range of external stakeholders on a variety of activities. The panel discussed with the School its approach to communications and how the School keeps its external stakeholders informed about the different activities in the School. The panel recommends that the School develop an Integrated communications strategy for all their key stakeholders, emphasising the School's uniqueness and differentiation; global recognition for excellence and one which identifies that the graduate attributes are industry relevant. As part of this communication the School could develop a short School profile which can be utilised to inform industry partners about the School and its unique strengths and successes which is sent together with a covering letter to all potential work placement providers. The School could also liaise with the College to explore the possibility of appointing a College Marketing Officer.

The panel was informed that as a result of the previous School review, that the School has established an Advisory Board. The School informed the panel about the usefulness of its introduction and provided details on its terms of reference and membership to the panel. The panel recommends that the rotation of the membership of Advisory Board should be staggered over a 3-5 year period.

5.5   Research

The panel commends the School on developing a research strategywhich focuses research around the key themes of:

- Nano-materials and Surface Chemistry
- Organic and Medicinal Chemistry
- Pharmaceutical Regulation
- Chemical Education
- Environmental Analysis and Monitoring

The panel noted that chemical education is now a distinct sub-discipline in chemistry, equivalent to the more traditional disciplines. The School has established a significant international reputation in this field. The chemical education group within the School should be encouraged to further develop, deepen and disseminate further. This activity supports the outreach mission of the School.

It was evident to the panel that the School is committed to developing research and postgraduate research (approximately 4% of L8 & L9 student number currently) and the staff in the School understand the significance of research to underpin both undergraduate and postgraduate teaching. There has, however, been a mixed result with regard to research activity within the School over the past 5 years. The number of postgraduate research students has plateaued and is noticeably lower than in the preceding five year period, while the number of research active supervisors is down from 12 to 10 on the previous five years. This is challenging given the need to rise numbers of such students to approximately 7% of the student population. The number of peer reviewed papers is seen to have increased, however as newer members of staff replace established researchers lost over the prior period this may begin to drop as the newer members of staff require time to adapt to their new positions. The panel and School discussed the range of supports available for research. As part of its Research Action Project (RAP) the School should identify the barriers and enablers for research and engage with university management to remove barriers and put in place the supports that would allow the research mission of the School to operate and flourish. In particular the panel is of the view that the current high administrative load on non-centre researchers is untenable and runs the risk of non-compliance with externally funded research reporting deadlines and the negative consequence arising from this. The panel is of the view that a dedicated resource should be allocated to the School, that supports researchers with the ordering of research materials, equipment, collating administrative reports on research and managing the time and leave of researchers.

One of the key roles for developing research in the university sector is the Postdoctoral Research position. In order to be able to attract candidates to these posts, the University needs to offer a Pension scheme to Postdoctoral Researchers in line with that offered in

other Irish Universities. There is a risk that good candidates will not accept posts that do not provide equivalent terms and conditions.

The panel discussed with the School its approach to research supervision. The panel noted that the current on-line PhD activity with experienced industry based PhD students is very innovative and is in keeping with the university's global ambition. However, this valuable activity is not appropriately reflected in the current workload model. The panel strongly recommends that there should be a parity of recognition within the workload model for research supervision which is undertaken with students who are based remotely. This will enable the School to continue this activity and give the School the opportunity to enhance their research student numbers, expand their global reach and enhance their international profile.   To further support research students in the School, the School should introduce a formal induction process for research students that provides an overview of current research projects and expertise, clarity on the supports available to students and the processes that students need to comply with.

To make the provision of postgraduate research scholarships more economically viable, the School could liaise further with the University, to have up to 6 hours a week demonstration / teaching duties for internally funded research students included as part of the PhD programme. Students who undertake this teaching should receive appropriate introductory training and ECTS certification as part of the structured Programme. The School should develop a School specific research module to capture this.

5.6   Staffing and Staff Development

It was evident to the panel through both the documentation provided and as demonstrated at its meeting with staff, that staff are strongly committed to enhancing the student experience. It was also evident that the School has developed a supportive staff culture. In particular the panel was impressed with the School's approach to staff induction, which includes providing a copy of the School self-study to new staff members and to the introduction of a staff buddy system for new staff members. It was evident to the panel that there is good engagement, by staff in the School, with both the staff development

and learning & teaching programmes and events available and sharing good practice between staff.

It was reported to the panel that the contract for Assistant Lecturers requires them to undertake 18 hours of contact teaching per week and the contract for Lecturers requires them to undertake 16 hours of contact teaching per week. This workload model for early career academic staff is contrary to International Best Practice. International best practice dictates that early career academic staff do not undertake a full teaching load in their first year of appointment in order to facilitate professional research development and initiate an independent research programme and apply for external research funding, progress on which can be reviewed at the end of year 1 probation.

Academic staff within the School have a large range of administrative responsibilities, which are increasing, these administrative duties are in addition to their research, engagement and teaching and this is putting undue pressure on staff. Fully resourced administrative structures and processes need to be reconfigured to support the academic mission. The School and staff would also benefit if the processes to be followed for specific administrative functions were clearer, the panel recommends the School develop standard operating procedures for specific administrative functions, including writing grant applications.

There is an ongoing issue in relation to the length of time taken, on average up to 12 months, to fill vacancies within the School. This constitutes a serious risk to the School. Good candidates have been lost to competitors, meantime the additional workload is putting significant additional pressures on existing staff thereby preventing the School meeting all its development objectives. It is also preventing the School from optimally assigning all staff to teach in areas that match their research expertise. The panel recommends that the University becomes competitive in its recruitment processes and respond to School requirements in a timely manner. In addition, the panel has noted that there are limited merit based promotional opportunities for staff and the panel recommends that Senior Lecturers posts should be assigned on the basis of merit rather than on the basis of student numbers within the School.

5.7 Future Development

The panel discussed with the School its plans for the future. The panel noted that the School is currently engaged in three major change projects. (1) In January 2019, the Dublin Institute of Technology merged with the Institute of Technology, Tallaght and Blanchardstown Institute of Technology to become Ireland's first Technological University. (2) The School is scheduled to relocate from its current site on Kevin Street to the new Campus in Grangegorman in September 2020 and (3) the implementation of new VLE: Brightspace to support Student Learning. These three change projects, provide a unique opportunity for the School to strengthen its position. In this regard, the Panel notes the approach taken to strengthen relationships with the chemists in TU Tallaght Campus by building research collaborations and the analysis undertaken to establish that that the undergraduate programmes are different but complementary to each other but notes that there is scope for some sharing of some modules and specialist facilities.

However, the panel noted that there is a considerable risk that when moving to Grangegorman that some pieces of equipment will not work properly when moved. The School needs to continue to liaise with the Migration team, to put in place a contingency plan for the equipment that fails, especially for Nuclear Magnetic Resonance(NMR) and Liquid Chromatography Mass Spectrometry (LCMS) . This is critical equipment for the School. There needs to be a financial allocation put in place to cover this.

The panel applauds the School's contribution towards meeting the University's international student recruitment targets. In order to continue this progress, the Panel advises the School to continue to liaise with the University to revise the current resource allocation model in relation to Globalisation, specifically the allocation of International student fee income, to incentivise the recruitment of International Students at School level. In particular, it is the panel's view that there is a potential international market to recruit additional MSc students, to the School. The School should continue to be

cognisant of the need for a balanced class composition when recruiting additional international students.

The panel noted that there are a range of internationalisation activities in which the School engages. The panel recommends that the School develop an internationalisation strategy that consolidates the various international activities that the School undertakes. The School would also benefit from developing a specific strategic plan to formalise the activities that the School undertakes with their alumni and to provide a consistency of approach.

Appendix 1

1.1 Membership of the Review Panel
The Review Panel appointed by Academic Council to carry out the School Based Review was comprised as follows:

Internal Members

Dr Kate Uí Ghallachóir   Head of School of Marketing
TU Dublin City Campus - Aungier Street

Greg Burke   School of Food Science & Environmental Health
TU Dublin City Campus - Cathal Brugha Street

Dr Mark Mulville   School of Surveying & Construction Management
TU Dublin City Campus - Bolton Street

External Members

Rosemary Hayden   Deputy Public Analyst,
Public Analyst's Laboratory, Dublin

Prof. Mike Lyons   Head of School
School of Chemistry, Trinity College, Dublin

Officer

Ms Nicole O'Neill   Quality Assurance Officer,

1.2   Programme of Visit to School

The Review took place in accordance with the following schedule.

Day 1 – Wednesday, 22nd May   Venue: Boardroom, DIT, Kevin St.

9.30am   Teas/coffees/. Formal beginning of process: Chair of Panel introduces members of panel to the College Director who introduces the Head of School and Assistant Heads of School.

9.45 am   Short formal presentation by Head of School and Assistant Heads of School describing main activities of the School and introducing the key points from the self-study report.

10.15 am   Private meeting of Panel to discuss agenda for day.

11.00 am   Tea/coffee break.

11.15 am   Panel meets with School Management Team to discuss the broad contents

of the self-study report and the implications for the School in terms of individual programmes and resources, more specifically the School's arrangements for quality assurance, programme development, links with industry / the professions, research activity and staff development.

12.45 pm	Lunch

1.45 pm   Teas / Coffees: Panel meets with School Management Team, College Manager, Head of Learning Development, School Administrators/Secretaries and Site Librarian to review the administrative and library supports which underpin the effective running and development of the School.

2.45 pm   Private meeting of Panel to review progress and decide on matters for further discussion or evaluation.

3.15. pm   Teas/coffees: Panel to meet with School Management Team, Head of Learning Development and Programme Chairs to discuss the suite of programmes offered by the School and the trends and direction of these – including discussion regarding programme management issues and quality assurance arrangements and to address specific issues relating to changes proposed.

4.45 pm   Panel meets with School's Technical Officers and Lab Aides.

5.15 pm   Private meeting of the panel to discuss progress

6.00 pm   Panel to meet with representative current and former taught students.

6.45 pm   Private meeting of Panel to review progress thus far.

7.00 pm   Dinner (to include College Director, School Management Team and other appropriate staff and Panel)

Day 2 – Thursday 23rd May   Venue: Boardroom, DIT, Kevin Street

9.30 am   Private meeting of Panel to review progress thus far.

10.00 am   Meeting with staff teaching on programmes to discuss syllabuses, teaching methods and assessment issues specific to the programmes: Room 1014, Kevin Street

11.15 am   Tea/coffee break.

11.30 am   Meeting with Research Students

12.00 am Panel meets with research active staff within the School to discuss the development of a critical mass in research, the integration of research and teaching, knowledge transfer and industry engagement and postgraduate research supervision.

12.45 pm Lunch and private meeting of the panel to consider the draft report.

2.00 pm Panel skype with Postgraduate Research based in US.

2.30 pm Private meeting of the Panel to consider the draft report.

4.00 pm Tea/coffees: Meeting of the Panel with College Director, Head of School and School Management Team to outline orally the Panel's findings.