

PROGRAMMATIC REVIEW OF THE FACULTY OF SCIENCE AND ENGINEERING, 2018-2022

Phase 2: Programme Review

PROGRAMME PANEL REPORT

SCHOOL: School of Science & Informatics

DEPARTMENT: Physical Sciences

DATE: 11th and 12th April 2018

PROGRAMMES SUBMITTED FOR REVIEW

Major Awards

BSc (Hons) Analytical Chemistry with Quality Assurance, level 8 award.

BSc Analytical and Pharmaceutical Chemistry, level 7 award

Non-Major Awards

Certificate in Quality Assurance (Level 6)

Certificate in Quality Management (Part I) (Level 7)

Certificate in Quality Management (Part II) (Level 7)

PROGRAMME REVIEW PANEL MEMBERSHIP

Dr Barry, Ryan, Lecturer, Dublin Institute of Technology.
School of Food Science and Environmental Health

Mr Kevin O'Sullivan, Associate Quality Advisor,
Eli Lilly Kinsale Limited, Co., Co. Cork

Dr Josephine Treacy, Limerick Institute of Technology,
Department of Applied Science.

Ms Mary O'Gorman, Pfizer Pharmaceuticals Ltd,
Site PAT Chemist, Drug Substance.

Prof Noel Barry, CIT representative

PROGRAMME REPRESENTATION

Programme Staff: Department of Physical Sciences

Dr Donagh O'Mahony, Head of Department
Dr William Doherty, Lecturer in Chemistry
Dr Rosamund Hourihane, Lecturer in Chemistry
Dr Ambrose Fury
Dr Mary Lehane
Dr Mary Ann Sheahan
Dr Eileen O'Leary
Miss Laura Crowe
Dr Elaine O'Keefe
Dr Nikolay Petkov

Learner Representatives

Carolina Hugo	1 st year, Analytical and Pharmaceutical Chemistry
Liam Crowley	1 st year, Analytical Chemistry and Quality Assurance
James O'Flynn	1 st year, Analytical Chemistry and Quality Assurance
Katarzyna Nowak	2 nd year, Analytical Chemistry and Quality Assurance
Melanie Mackey	4 th year, Analytical Chemistry and Quality Assurance
Monica Majur	4 th year, Analytical Chemistry and Quality Assurance

Graduates

Gavin Ring,	SCHQA graduate and now PhD student
John O'Sullivan	SCHQA graduate and now Mc student in UCC

External Stakeholders

Dr David Healy	Abbvie Ltd., Senior Analytical Scientist
Mr Alan Costello	Irish Water, Executive Scientist.

A. PROGRAMME SUMMARY AND MAJOR CHANGES PROPOSED

Programme Summary and overview.

1. BSc (Hons) Analytical Chemistry with Quality Assurance

The BSc Analytical Chemistry with Quality Assurance has played a key role in delivering high calibre graduates to the regional BioPharmaChem sector but with the added training in Quality Management, which is particularly important in the context of this highly regulated industry. Students are taught not only the chemical principles to give them a good grounding in their field but also how to work as chemists in a Good Manufacturing Practices (GMP) environment. Students are trained to understand process mapping, data evaluation, product life cycle, quality of design and risk based quality approaches that form the basis of the major quality standard requirements (ISO 9001:2015, EurChem regulations, FDA etc.).

The BSc Hons equips students to work in many areas of the BioPharmaChem Industry, including analytical assay development and testing, method transfer and validation, trouble shooting, quality control and quality management, quality regulations and data analysis. In addition to training students to work in the BioPharmaceutical sector, the BSc Hons (L8) degree provides students with the tools to enable them to embark on a range of career paths, for example, it equips them to undertake Analytical Chemistry projects at PhD and MSc level and many of the graduates embark on post graduate studies both in Ireland and abroad. The course also enable students to undertake the Higher Diploma Course and MSc in Education (TCD and NUI) that allows them to gain qualifications to teach Chemistry in 2nd level schools and institutes.

2. BSc in Analytical and Pharmaceutical Chemistry

The BSc in Analytical and Pharmaceutical Chemistry prepares students for careers as chemical laboratory technicians, primarily in areas related to the BioPharmaChem industry but also in more diverse sectors such as Food & Beverage, Oil and Gas, etc. Typical areas of operation relevant to the programme outcomes are:

- Pharmaceutical/Biotech Laboratory Technician
- Chemical, Oil and Gas or Food Laboratory Technician
- Environmental Analyst
- Microbial Quality Control Analyst

Students are given a broad perspective of the industry and its role and incorporate work experience in stage 3, which develops independence and self-reliance. Graduates typically take on roles as laboratory technicians, analysts, quality control specialists. In the past, graduates of the L7 programme would have moved on to senior technical and management positions but in recent years this level of career development has been more associated with L8 graduates.

3. Higher Certificate in Science in Chemistry (Level 6)

This is an exit award from the previous level 7, BSc Analytical and Pharmaceutical Chemistry award, at the end of the second year of its delivery and is a Higher Certificate, level 6 award. It equips the graduate with basic knowledge of the areas mentioned in the level 7 award.

The panel recommendations applied to this and the following course, where appropriate.

4. Certificate in Quality Assurance (Special Purpose Award, Level 6, 10 ECTS)

The department of Physical Sciences offers this part-time programme as a 10-credit special purpose award (SPA) run over a single academic year, with one module offered per semester (3 hours per week). The programme was previously offered by the Department of Chemistry as the City and Guilds Certificate in Quality Assurance parts 1 & 2 and in 2006 was re-designated by CIT following validation by HETAC as a Special Purpose award at Level 6 and continued by CIT following discontinuation of C&G course in 2010.

The course has continuously proved to be attractive to students already working or looking to work in a quality assurance role and seeking a recognized level 6 qualification in Quality Assurance. Performance is evaluated by continuous assessment and graduates often progress to study on the level 7 SPA Diploma in Quality Management also offered by the Department, which is accredited by the Excellence Ireland Quality Association.

5. Certificate in Quality Management (Part I) (Special Purpose Award, Level 7, 10 ECTS) Certificate in Quality Management (Part II) (Special Purpose Award, Level 7, 10 ECTS)

These two awards are a long established course run over two stages as Part 1 and Part 2 and is delivered by CIT on behalf of Excellence Ireland Quality Assurance (EIQA). The course was validated in 2006 by HETAC as a Level 7 Special purpose (30 credit) award. Applicants are required to have passed, at least, an introductory course in quality assurance such as CIT's 'Certificate in Quality Assurance – Special Purpose Award' or the 'City & Guilds Certificate in Quality Assurance'. Graduates of honours science and engineering degree programmes with quality assurance as a component subject would usually be eligible, provided they have sufficient appropriate experience. This course is not part of the formal validation process of the present review, but is mentioned here to complete the suite of courses in Quality.

B. PANEL FINDINGS AND RECOMMENDATIONS

1. OVERALL RECOMMENDATION TO ACADEMIC COUNCIL ON REVALIDATION

Contingent upon a commitment to engage with the Panel recommendations below and the successful completion of the internal programme and module moderation process, the Panel **recommends to Academic Council that the listed programmes be revalidated** for five years or until the next Programmatic Review, whichever is sooner, with effect from September 1st 2018. The findings, unless stated to the differ, apply across all programmes, level 6 to level 8.

1.1. **Requirement:** No Panel Requirements are attached to this revalidation.

1.2. **Recommendations:** Recommendations are listed below under the prescribed headings.

2. GENERAL

2.1 Commendation

The Panel strongly commends the Programme Team on a detailed self-study and a coherent proposed Programme for revalidation. The Staff showed a strong empathy towards their students. The proposed changes will strengthen the programme and are informed by all stakeholders; staff, students, graduates and employers.

2.2 Recommendations

2.2.1. The Panel recommends the retention of the Level 7 entry offering so as to maintain two entry streams and thus widening participation at 3rd level from a broader socio-economic base. It is also strongly recommended that the 50% threshold to progress onto Yr4 Honours Programme is retained.

2.2.2 The Panel recommends the introduction of a 35% minimum threshold in all components, in all modules in all years. Although previously raised at Department level, this threshold should to be re-examined at a School level. The introduction of this threshold will ensure a minimum level of competency in both the theoretical and practical aspects of the Programme.

2.2.3 The Panel recommends no Programme name change; but if a name change is pursued that both level 7 (L7) and level 8 (L8) changes align. However, the Panel strongly recommends the adoption of a marketing strategy to educate Guidance Councillors, teachers, potential students, parents etc. Further to this the panel strongly recommends that the School/Department website is reviewed and updated to reflect the activity of the Department (e.g. day in the life of a student, what our graduates do, staff profile pages etc.)

2.2.4 The panel strongly recommends that Department and School resources are examined and reviewed to ensure optimal and fair use. Staff duties/responsibilities (academic and technical) and space need to be considered carefully, particularly technical staff. Perhaps an

opportunity exists at a School level to redefine technical staff work practice with a view to defining a dedicated Dept. of Chemistry/final year project support technician.

2.2.5 The Panel strongly recommends that the Technical Staff are supported in developing a maintenance programme for all items of instrumentation. This programme should mirror industry best practice and can be used to further underpin student GLP/GMP learning.

2.2.6 The Panel strongly recommends that the Department liaise with industry to create network for re-homing equipment, placements, guest speakers etc. This can be formalised to ensure sustainability if possible.

2.2.7 The Panel strongly recommends significant capital investment into the department; this spend needs to be prioritised; e.g. glassware first and then key pieces of equipment that are near end of life, such as High Performance Liquid Chromatography HPLC; Gas Chromatography mass spectroscopy GCMS and infra-red spectroscopy IR..

2. ENTRANT AND GRADUATE PROFILE, AWARD AND PROFESSIONAL ENVIRONMENT

3.1 Commendation: The panel commends the Programme Team for the performance of their graduates once they enter industry and also the student performance during work placements. Industry representatives commented specifically on the work readiness of the graduates.

3.2 Recommendations

3.2.1 The panel suggests that the Programme Teams consider putting the Level 8 Programme forward for RSC (Royal Society of Chemistry) accreditation. If successful, the accreditation will act as a further marketing strength for increasing student numbers. . In order to enhance internal quality with regard practicals, students should be involved in the Eurochem Analytical Competition which involves all third level colleges in Ireland.

3.2.2 The Panel strongly recommends moving towards higher entry (e.g. CAO Points) for L7 and L8 to ensure greater consistency between L7 and L8 students as they are co-taught for significant portion of years 1-3. This will also increase the standard of intake student and should assist in enhancing year on year retention.

3.2.3 The Panel strongly recommends a targeted and aggressive marketing strategy is developed and executed; with medium, 5 year, and longer 10 year, plans. This strategy should include outreach to schools and PLC providers in the catchment area. Again, the Department Website needs significant improvement to be outward looking, informative and engaging to all external stakeholders, specifically showcasing what Programme delivers and the destinations of the graduates.

3.3.4 The Panel recommends the development of Programmatic Graduate Attributes (GA). Once defined these should be mapped onto Programme learning outcomes (LO) and Module LO's. The associated learning and assessment strategies should align to a development and a documentation of these GAs. The GAs should be clearly signposted in class/assessments so

the students can understand the development and construction of these attributes and why they are important for their careers.

3.2.5 The Panel recommends the CIT Module could be enhanced to link the mapped LOs and Graduate Attributes over the 4 years programme and evidence gathered and documented (e.g. a portfolio of practice/development). This construction of an evidence base for LOs and GAs could act as a foundation to support student articulating their competencies in interviews etc. The Panel also recommends that the CIT module be taken in Sem2 of Year 1.

3.2.6 The Panel strongly recommends the Dept/School Management explore creative opportunities to support and resource staff (academic and technical) to continuously develop professionally. Specific areas recommended are equipment maintenance (technical staff) and TLA Development (including online learning; academic staff).

3.3 Requirement: No Panel Requirements are attached to this revalidation

3. PROGRAMME OPERATION AND PERFORMANCE

4.1 Commendations:

4.1.1 The Panel commends the Programme Team offering multiple routes of entry and exit, within a ladder of opportunity philosophy; however, care is needed to ensure sufficient differentiation between the L7 and L8 graduates (e.g. Graduate Attributes and levels).

4.1.2 The Panel welcomes the proposed changes to the Maths stream and should be adopted immediately and for all Programmes, if possible. The specific focus on applied, chemistry-orientated maths is welcome; however, basic lab-based calculations (e.g. molarity) should be consistently re-enforced from semester 1, year 1 onwards.

4.2 Recommendations:

4.2.1 The Panel strongly recommends that all lab equipment is reviewed and specific and key equipment is updated and be linked to common industry standards (e.g. LIMs user licence is an absolute must).

4.2.2 The Panel recommends the development of a coherent, sustainable Departmental Governance model; with clear roles and responsibilities for all levels. A suggested model is Head of School > Head of Department > Programme Chair > Year Coordinator > Module Coordinator. These roles should be valued within the Institutional promotional/progression pathways.

4.2.3 The Panel strongly recommends the adoption of a proactive, forward-looking Programme Management, which embraces change that is pedagogically sound and evidence based. The panel suggests the development of a rapid and optimised change control process for minor changes (although this may be beyond the remit of the Department).

4.2.4 The Panel recommends that the Programme Team reflect on what makes the Programme attractive to both incoming students and industry. From the Panels engagement with stakeholders (industry, graduates and current students) these are the practical elements of the Programme, the small class size, the work experience, engaged staff, supportive learning environment, the quality assurance and analytical experience. These should be front and centre for all marketing strategies.

4.3 Requirement: No Panel Requirements are attached to this revalidation

4. PROPOSED PROGRAMME SPECIFICATION (INCL. DELIVERY AND ASSESSMENT)

5.1 Commendation

5.1.1 The Panel commend the Programme Team on the ability of their Programme to deliver on the Programmatic, and modular, learning outcomes.

5.1.2 The Panel welcomes the obvious targeting of first years for retention (e.g. attendance tracking and innovated teaching methods). These examples of best practice should be rolled out over later years after evaluation.

5.1.3 The Panel heard about good examples of developing best pedagogical practice (e.g. alignment of lab work to workshops and reflective practice). These innovations should be fully evaluated and used as seeds to grow this approach to evidence based teaching throughout the Programme.

5.2 Recommendations:

5.2.1 The Panel recommends that the Programme migrate towards a 6-month work placement, with a corresponding increase in the associated credits. An alignment of the work placement at the end of year 3 may lead into students staying in industry for their final year project (FYP) and this should also be encouraged and supported.

5.2.2 The Panel strongly recommends that students are provided with their FYP title earlier, that is semester 1 of year 4. The earlier allocation of FYPs will allow students to start their literature review/method development in Sem1 Y4 and may reduce the time pressure currently experienced in semester 2 of year 4.

5.2.3 The panel recommends that the Programme Team consider carefully the current method of FYP allocation. An alternative, merit based approach (based on a weighted GPA from Yr3/Yr4) may encourage students to perform better in earlier years.

5.2.4 The Panel strongly recommends the development, and adoption, of a departmental feedback policy. This should detail items such as turnaround time, standard expected etc. and should be informed and based on best practice.

5.3 Requirement: No Panel Requirements are attached to this revalidation

5. MODULES

This section presents the findings and recommendations from an indicative review of modules carried out by the members of the Peer Review Panel. The Panel notes that a comprehensive survey of module specifications could not be carried out in the context of this review.

Therefore, a recommendation of the Panel to revalidate the programme(s) under review is contingent on the successful completion of the subsequent internal programme and module moderation process carried out by, or on behalf of, the CIT Registrar's Office.

6.1 Commendation:

The Panel commends the inclusion of industry relevant modules (e.g. *Chemometrics*) and a realignment of internal streams (e.g. *Analytical Stream*). These are well considered and welcomed.

6.2 Recommendations:

6.2.1 The Panel strongly recommends the Programme Team consider relocating some LOs into the Work Placement (e.g. LO's related to QA/LIMs in particular). On the job learning would significantly enhance these LOs and would allow the release of credits (that could be placed into the work placement). Further recommendation is that a competency list (and level) is defined for the students to identify what skills they need to develop during their work placements. This will also support industry in providing appropriate work placement experiences. The panel recommends learning outcomes (LOs) wording to be reviewed in line with the variety and higher order learning achieved especially at level 8 (presently too much emphasis on words ability and awareness).

6.2.2 The Panel recommends the inclusion of more opportunities for students to present in front of peers and staff and also to reflect on their learning. These elements need to be embedded into relevant module assessments across years 1-4.

6.2.3 The Panel strongly recommends the development and execution of a harmonised departmental marking model. This should include items such as rubric availability to students (and other Programme Team members) at the start of the module. Learning and programme outcomes along with graduate attributes should be mapped onto all assessments and clearly signposted in the grading rubric.

6.2.4 The Panel strongly recommends that the Programme Team and Department/School Management consider elective modules. Elective modules that are offered to students need

to be available; otherwise they should not be offered. A compromise here may be to offer the elective as a choice between the *CIT Free Choice Option* and a discipline specific or no elective (however, it is understood that a derogation would be needed in this case).

6.2.5 The Panel recommends the inclusion of Inductively Coupled Plasma theory, perhaps best suited in year 2, semester 3. Consideration might be given to a Process Analytic Technique elective module also with an emphasis on chemometrics and API, Drug Product, Sterile Mnf., Food & Beverage applications etc.

6.3 Requirement: No Panel Requirements are attached to this revalidation

6. OTHER FINDINGS AND RECOMMENDATIONS

7.1 The Panel noted no other findings and recommendations.

7. DEROGATIONS SOUGHT

7.1. No derogations sought.

C. PROGRAMME FINALISATION

It records the implementation of any panel requirements and the completion of the internal module moderation process. Confirmation of completion by the CIT Registrar's Office is required for both before the programmes can be submitted to the CIT Academic Council for revalidation.]

1. IMPLEMENTATION OF PANEL REQUIREMENTS

Requirement(s) <i>[Please copy & paste from the report, adding rows as necessary. Completed recomm. can also be indicated.]</i>	Department Response <i>[Academic Department to complete]</i>
2.2.1 The Panel recommends the retention of the Level 7 entry offering so as to maintain two entry streams and thus widening participation at 3 rd level from a broader socio-economic base. It is also strongly recommended that the 50% threshold to progress onto Yr4 Honours Programme is retained.	Completed. L7 entry (SCHEM_7) remains. New programmes discussed during the panel meeting are being or will be considered, e.g. MSc in QA and L6/7 Lab Apprenticeship.
2.2.2 The Panel recommends the introduction of a 35% minimum threshold in all components, in all modules in all years. Although previously raised at Department level, this threshold should to be re-examined at a School level. The introduction of this threshold will ensure a minimum level of competency in both the theoretical and practical aspects of the Programme.	In progress. A working group has been setup by the registrar's office and will advise. The department proposes to introduce component minima, in particular for core module streams, e.g. to meet H&S, accreditation requirements.
2.2.3 The Panel recommends no Programme name change; but if a name change is pursued that both level 7 (L7) and level 8 (L8) changes align. However, the Panel strongly recommends the adoption of a marketing strategy to educate Guidance Counsellors, teachers, potential students, parents etc. Further to this the panel strongly recommends that the School/Department website is reviewed and updated to reflect the activity of the Department (e.g. day in the life of a student, what our graduates do, staff profile pages etc.)	Completed. The department accepts the recommendation and is engaging with relevant stakeholders to develop the programme brand.
2.2.4 The panel strongly recommends that Department and School resources are examined and reviewed to ensure optimal and fair use. Staff duties/responsibilities (academic and technical) and space need to be considered carefully, particularly technical staff. Perhaps an opportunity exists at a School level to redefine technical staff work practice with a view to defining a dedicated Dept. of Chemistry/final year project support technician.	In progress. The department has made a submission to recruit additional technical support staff.

<p>2.2.5 The Panel strongly recommends that the Technical Staff are supported in developing a maintenance programme for all items of instrumentation. This programme should mirror industry best practice and can be used to further underpin student GLP/GMP learning.</p>	<p>In progress. The department has applied for funding from both internal and external sources to upgrade laboratory facilities and associated essential equipment. Funding has been approved for upgrade of teaching labs.</p>
<p>2.2.6 The Panel strongly recommends that the Department liaise with industry to create network for re-homing equipment, placements, guest speakers etc. This can be formalised to ensure sustainability if possible.</p>	<p>The department is engaging with regional industry partners to source equipment through donation. Some upgrades to equipment via donation have already been made since the panel meeting.</p>
<p>2.2.7 Significant capital investment into the department; ...High Performance Liquid Chromatography HPLC; Gas Chromatography mass spectroscopy GCMS ad infra-red spectroscopy IR.</p>	<p>In progress. The department is engaging potential with internal and external funding sources.</p>
<p>3.2.1 The panel suggests that the Programme Teams consider putting the Level 8 Programme forward for RSC (Royal Society of Chemistry) accreditation. If successful, the accreditation will act as a further marketing strength for increasing student numbers. . In order to enhance internal quality with regard practicals, students should be involved in the Eurochem Analytical Competition which involves all third level colleges in Ireland.</p>	<p>In progress. The department is engaging with the RSC to re-establish accreditation of chemistry programmes. A submission will be made for Sept 2019. The department has participated in Eurochem in 2018 & 2019.</p>
<p>3.2.2 The Panel strongly recommends moving towards higher entry (e.g. CAO Points) for L7 and L8 to ensure greater consistency between L7 and L8 students as they are co-taught for significant portion of years 1-3. This will also increase the standard of intake student and should assist in enhancing year on year retention.</p>	<p>In progress. The department supports this recommendation and an analysis will be presented to school and faculty BoS.</p>
<p>3.2.3 The Panel strongly recommends a targeted and aggressive marketing strategy is developed and executed; with medium, 5 year, and longer 10 year, plans. This strategy should include outreach to schools and PLC providers in the catchment area. Again, the Department Website needs significant improvement to be outward looking, informative and engaging to all external stakeholders, specifically showcasing what Programme delivers and the destinations of the graduates.</p>	<p>In progress. The department is reviewing marketing strategies and supports available to resource this recommendation.</p>
<p>3.2.4 The Panel recommends the development of Programmatic Graduate Attributes (GA). Once defined these should be mapped onto Programme learning outcomes (LO) and Module LO's. The associated learning and assessment strategies should align to a development and a documentation of these GAs. The GAs should be clearly signposted in class/assessments so the students can understand</p>	<p>Completed The department has engaged with careers office to ensure students are better prepared for placement and careers after graduations. A number of initiatives have already been implemented, e.g. 3rd industry showcase & 2nd yr placement seminar, "Bright Futures" seminar.</p>

the development and construction of these attributes and why they are important for their careers.	
3.2.5 The Panel recommends the CIT Module could be enhanced to link the mapped LOs and Graduate Attributes over the 4 years programme and evidence gathered and documented (e.g. a portfolio of practice/development). This construction of an evidence base for LOs and GAs could act as a foundation to support student articulating their competencies in interviews etc. The Panel also recommends that the CIT module be taken in Sem2 of Year 1.	In progress. The module will be reviewed in the coming academic year to consider inclusion of suggested content. The proposal to move to Sem 2 cannot be facilitated.
3.2.6 The Panel strongly recommends the Dept/School Management explore creative opportunities to support and resource staff (academic and technical) to continuously develop professionally. Specific areas recommended are equipment maintenance (technical staff) and TLA Development (including online learning; academic staff).	In progress. The department will engage with school and faculty to explore CPD options. The department will participate in T&L initiatives such as learning community development.
4.2.1 The Panel strongly recommends that all lab equipment is reviewed and specific and key equipment is updated and be linked to common industry standards (e.g. LIMs user licence is an absolute must).	In progress. The department has reviewed equipment specification and has made proposals to upgrade facilities and equipment. Funding for Chemistry lab refurbishment has been approved
4.2.2 The Panel recommends the development of a coherent, sustainable Departmental Governance model; with clear roles and responsibilities for all levels. A suggested model is Head of School > Head of Department > Programme Chair > Year Coordinator > Module Coordinator. These roles should be valued within the Institutional promotional/progression pathways.	In progress. Department coordination roles have been reviewed and discussed at staff meetings. Restructuring of year coordination roles has taken place.
4.2.3 The Panel strongly recommends the adoption of a proactive, forward-looking Programme Management, which embraces change that is pedagogically sound and evidence based. The panel suggests the development of a rapid and optimised change control process for minor changes (although this may be beyond the remit of the Department).	Completed. A departmental committee structure has been put in place to cover areas such as Outreach, Teaching & Learning, Marks & Standards. Committees review designated activities and roles at least once per semester.
4.2.4 The Panel recommends that the Programme Team reflect on what makes the Programme attractive to both incoming students and industry. From the Panels engagement with stakeholders (industry, graduates and current students) these are the practical elements of the Programme, the small class size, the work experience, engaged staff, supportive learning environment, the quality assurance and analytical experience. These should be front and centre for all marketing strategies.	In progress. The department is engaging with relevant stakeholders: guidance counsellors, schools, ISTA, industry associations (e.g. BPCI).

<p>5.2.1 The Panel recommends that the Programme migrate towards a 6-month work placement, with a corresponding increase in the associated credits. An alignment of the work placement at the end of year 3 may lead into students staying in industry for their final year project (FYP) and this should also be encouraged and supported.</p>	<p>In progress The department acknowledges the value of this recommendation. The department will endeavour to implement extended placement for academic year 2020/21. Design of final year project in conjunction with placement site will be strongly encouraged.</p>
<p>5.2.2 The Panel strongly recommends that students are provided with their FYP title earlier, that is semester 1 of year 4. The earlier allocation of FYPs will allow students to start their literature review/method development in Sem1 Y4 and may reduce the time pressure currently experienced in semester 2 of year 4.</p>	<p>Completed. Students are informed of their FYP in semester 1. The new research methods module CHEA8009 will incorporate aspects of FYP preparation (literature review).</p>
<p>5.2.3 The panel recommends that the Programme Team consider carefully the current method of FYP allocation. An alternative, merit based approach (based on a weighted GPA from Yr3/Yr4) may encourage students to perform better in earlier years.</p>	<p>In progress. The department acknowledges the recommendation and is generally supportive of same. Department will review FYP allocation process to allow more visibility on project selection methodology. Students are provided with more detail on FYP write-up requirements.</p>
<p>5.2.4 The Panel strongly recommends the development, and adoption, of a departmental feedback policy. This should detail items such as turnaround time, standard expected etc. and should be informed and based on best practice.</p>	<p>Completed. Learning community established within department to inform staff of best practice and successful approaches to T&L</p>
<p>6.2.1 The Panel strongly recommends the Programme Team consider relocating some LOs into the Work Placement (e.g. LO's related to QA/LIMs in particular). On the job learning would significantly enhance these LOs and would allow the release of credits (that could be placed into the work placement). Further recommendation is that a competency list (and level) is defined for the students to identify what skills they need to develop during their work placements. This will also support industry in providing appropriate work placement experiences. The panel recommends learning outcomes (LOs) wording to be reviewed in line with the variety and higher order learning achieved especially at level 8 (presently too much emphasis on words ability and awareness).</p>	<p>In progress. This recommendation will be reviewed in the context of implementation of an extended work placement duration (see 5.2.1).</p>
<p>6.2.2 The Panel recommends the inclusion of more opportunities for students to present in front of peers and staff and also to reflect on their learning. These elements need to be embedded into relevant module assessments across years 1-4.</p>	<p>In progress. A number of initiatives have been implemented to provided additional opportunities for students to present before peers, e.g. 3rd year industry showcase, 2nd year careers seminars.</p>
<p>6.2.3 The Panel strongly recommends the development and execution of a harmonised departmental marking model. This should include items such as rubric availability to students (and</p>	<p>Completed. Staff have worked with coordinators to develop assessment plans and marking schemes for students on respective programmes.</p>

<p>other Programme Team members) at the start of the module. Learning and programme outcomes along with graduate attributes should be mapped onto all assessments and clearly signposted in the grading rubric.</p>	<p>Implementation of a harmonised rubric-based marking scheme for Y1 students is in progress.</p>
<p>6.2.4 The Panel strongly recommends that the Programme Team and Department/School Management consider elective modules. Elective modules that are offered to students need to be available; otherwise they should not be offered. A compromise here may be to offer the elective as a choice between the <i>CIT Free Choice Option</i> and a discipline specific or no elective (however, it is understood that a derogation would be needed in this case).</p>	<p>Completed. Non viable or no longer offered electives have been removed. Reducing the number of Free Choice Electives to 20 credits maximum across a programme is sought.</p>
<p>6.2.5 The Panel recommends the inclusion of Inductively Coupled Plasma theory, perhaps best suited in year 2, semester 3. Consideration might be given to a Process Analytic Technique elective module also with an emphasis on chemometrics and API, Drug Product, Sterile Mnf., Food & Beverage applications etc.</p>	<p>Completed. Content now included in Year 3 of programmes (CHEO7004).</p>

2. MODULE AND PROGRAMME MODERATION

C.2.1 Completion of Programme and Module Moderation

Completed

D. APPENDIX – TIMETABLE OF PHASE 2 MEETINGS