QQI
Quality and Qualifications Ireland
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

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Independent Evaluation Report on an Application for Validation of a Programme of Education and Training

Part 1

Provider name	CCT College Dublin
Date of site visit	24-04-2019
Date of report	20-05-2019

Overall recommendations

Principal programme	Title	Master of Science in Applied Software Development
	Award	Master of Science
	Credit	90 ECTS
Recommendation *Satisfactory OR Satisfactory subject to proposed conditions[1] OR Not Satisfactory*	**Satisfactory subject to proposed conditions**	

Embedded programme	Title	Postgraduate Diploma in Science in Applied Software Development
	Award	Postgraduate Diploma in Science
	Credit	60 ECTS
Recommendation *Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory*	**Satisfactory**	

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[1] Normally an application that fails to meet the criteria in any of its aspects will be considered as not satisfactory. Nevertheless, so as to ensure that the validation process will not be implemented unreasonably, if an independent evaluation finds that a programme virtually meets the validation criteria but needs some minor modifications, the independent evaluation could conclude "Satisfactory subject to recommended special conditions" where the special conditions prescribe the defects that require to be corrected.

Further, in exceptional cases the 'special conditions' may be used to identify parts of the application that are considered satisfactory on a stand-alone basis. For example, an application might propose a programme to be provided at two locations but the independent evaluation report may find the application satisfactory on condition that it be provided only at one specified location and not at the other. These conditions will not however be used to recommend that QQI can be satisfied with a programme conditional on a different QQI award (e.g. at a lower NFQ level or having a different CAS award title) being sought than the one identified in the application.

Evaluators

Evaluators		
Name	**Role**	**Affiliation**
Mr. David Denieffe	Chair	Registrar - Institute of Technology Carlow
Dr. Sheila Fallon	Subject Matter Expert	Lecturer in Software Engineering and Research Supervisor Athlone Institute of Technology
Mr. Aidan McGowan	Subject Matter Expert	Lecturer - School of Electronics & Computer Science Queen's University Belfast
Mr. Robert Browne	Student	Postgraduate student IT Blanchardstown
Mr. Paul Madden	Industry Representative	Neueda
Dr. Catherine Peck	Report Writer	Education Consultant

Principal Programme

Names of centres where the programmes are to be provided	Maximum number of learners *(per centre)*	Minimum number of learners
CCT College Dublin (CCT), 30-34 Westmoreland St., Dublin 2	120	32 (16 Full-time and 16 part-time)

Enrolment interval *(normally 5 years)*	Date of first intake	September 2019
	Date of last intake	August 2024
Maximum number of annual intakes	4	
Maximum total number of learners per intake	120	
Programme duration (months from start to completion)	15 months FT 2 years 3 months PT	
Target learner groups		
This programme is intended for graduates of level 8 NFQ major awards in ICT/Computing (or equivalent), aspiring to progress their academic experience to post graduate level, specifically in the area of software development. The programme is available to learners who present with undergraduate degrees in ICT/computing disciplines. Relevant experience in the area of software development and/or professional certification, may also be considered.		
Approved countries for provision	Ireland	
Delivery mode: Full-time/Part-time	Full time and Part-Time	
The teaching and learning modalities		
Lecture, lab, tutorial, workshop, project supervision, directed group work, and directed reading.		
Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)		
The MSc in Applied Software Development (90 ECTS) is designed for full-time, part-time, domestic and international, level 8 (Irish NQF) major award-holders or equivalent in ICT/computing disciplines seeking to develop their knowledge, skills and competence in the area of software development. The programme is a specialist, post graduate computing degree designed to produce graduates with the attributes required of software developers today and the ability to continue to develop knowledge, skill and competence to remain competitive and employable in an ever-advancing sector. The programme consists of 60 credits of taught module work and 30 credits of an applied development project. Learners who decide to leave the programme, after completing the taught elements only, may be entitled to receive the embedded exit award of a Post Graduate Diploma in Science in Applied Software Development. Graduates will be qualified to assume advanced industry roles and/or to further their education at level 10.		

Summary of specifications for teaching staff	WTE
A minimum of an MSc in Computing, Computer Science, Software Development or domain equivalent, is essential. Experienced delivering and assessing higher education computing modules, ideally including at level 9 is both advantageous and desirable. Where a lecturer is not experienced in level 9 module delivery and assessment, they will be required to complete the CCT Certificate in Teaching, Learning and Assessment at Level 9, and will also be assigned a mentor with level 9 experience, as per CCT QA Policy.	2
PhD in Computing, Computer Science, Software Development or equivalent. Experience delivering level 9 computing modules.	2
MSc or PhD in Computing with experience managing level 8 or 9 computing programmes including project/dissertation modules.	1

Learning Activity	Ratio of learners to teaching-staff
Applied Software Development Project	4:1
Laboratory work / Tutorials / Workshops	30:1
Lectures / Demonstrations	60:1

Programmes being replaced (applicable to applications for revalidation)		
Code	Title	Last enrolment date
N/A		

Embedded programme[2]

Names of centres where the programmes are to be provided	Maximum number of learners (per centre)	Minimum number of learners
CCT College Dublin (CCT), 30-34 Westmoreland St., Dublin 2	120	32

Enrolment interval (normally 5 years)	Date of first intake	September 2019
	Date of last intake	August 2024
Maximum number of annual intakes	4	
Maximum total number of learners per intake	120	
Programme duration (months from start to completion)	1 year FT 2 years PT	
Target learner groups		
Approved countries for provision	Ireland	
Delivery mode: Full-time/Part-time	Full time and Part-Time	
The teaching and learning modalities	Lecture, lab, tutorial, workshop, project supervision, directed group work, and directed reading.	
Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)		
The PG Diploma in Applied Software Development (90 ECTS) is designed for full-time, part-time, domestic and international, level 8 (Irish NQF) major award-holders or equivalent in ICT/computing disciplines seeking to develop their knowledge, skills and competence in the area of software development. The programme is a specialist, post graduate computing degree designed to produce graduates with the attributes required of software developers today and the ability to continue to develop knowledge, skill and competence to remain competitive and employable in an ever-advancing sector. The programme consists of 60 credits of taught module work. Graduates will be qualified to assume advanced industry roles and/or to further their education at level 10.		
Summary of specifications for teaching staff		WTE
A minimum of an MSc in Computing, Computer Science, Software Development or domain equivalent, is essential. Experienced delivering and assessing higher education computing modules, ideally including at level 9 is both advantageous and desirable. Where a lecturer is not experienced in level 9 module delivery and assessment, they will be required to		2

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[2] This only needs to be completed where embedded programmes may be offered independently of the principal programme. Add more subsections if there are more than one embedded programmes proposed to lead to QQI awards.

complete the CCT Certificate in Teaching, Learning and Assessment at Level 9, and will also be assigned a mentor with level 9 experience, as per CCT QA Policy.	
PhD in Computing, Computer Science, Software Development or equivalent. Experience delivering level 9 computing modules.	2
MSc or PhD in Computing with experience managing level 8 or 9 computing programmes including project/dissertation modules.	1

Learning Activity	Ratio of learners to teaching-staff
Applied Software Development Project	4:1
Laboratory work / Tutorials / Workshops	30:1
Lectures / Demonstrations	60:1
Summary of specifications for teaching staff	As per the above
Summary of specifications for the ratio of learners to teaching-staff	As per the above

Programmes being replaced (applicable to applications for revalidation)		
Code	**Title**	**Last enrolment date**
N/A		

Other noteworthy features of the application

The panel notes that clear and detailed documentation was provided by CCT to support the provider's application, and that this enabled the panel to work efficiently to review the evidence and make appropriate recommendations to QQI.

During the site visit, CCT staff were able to articulate clear rationales for the programme and module choices made in relation to the written curriculum, and to define adjustments required to teaching practices in order to deliver programmes at NFQ Level 9.

Among the staff, enthusiasm for the proposed programme and a commitment to the processes surrounding programme validation was evident.

Part 1A Evaluation of the Case for an Extension of the Approved Scope of Provision (where applicable).

Comment on the case for extending the applicant's Approved Scope of Provision to enable provision of this programme.

Following CCT's reengagement for QA in 2018, recommendations were made that pertained specifically to the provider's intent to apply for an extension of current Approved Scope of Provision. CCT's *Submission to QQI for Validation* documentation, and the responses of CCT representatives to queries from the panel during the site visit reflect that the provider has given serious consideration to these recommendations. CCT has acted swiftly to develop and implement systems and supports in line with these recommendations. Specifically:

- The recommendation that CCT orient the proposed Master of Science in Applied Software Development to a professional model has been acted on by the provider. This is reflected in the curricular emphasis on development of transferable soft skills and competences across the programme. It is further evident in the provider's decision to move away from a traditional research thesis, which is replaced by an industry informed capstone project, explicitly designed to simulate professional practice.

- The recommendation that CCT formally embed industry engagement across all levels of its programmes has been acted on by the provider. This is evident in the provider's establishment of an Industry Engagement Forum. The strategic rationale and purpose for this forum, models for employer engagement and a current membership list are listed in the CCT document *Industry Engagement Forum Guide*, which was provided to members of the panel during the site visit.

- The recommendation that CCT focus on developing staff capabilities with regard to teaching at NFQ Level 9 has been acted on by the provider. Indicative actions taken include establishment of a Centre for Teaching and Learning, and designation of a space for this adjacent to the library facilities. CCT staff have engaged with training offered by the National Forum for the Enhancement of Teaching and Learning, a monthly staff professional development bulletin has been established, and an in-house 'Excellence in Teaching' guest speaker series has commenced. New appointments have been made with a focus on extending the scope of provision to NFQ Level 9. These include a Head of Enhancement, a Programme Development Lead and a number of (mainly part-time) teaching staff.

- The recommendation that CCT benchmark against similar providers internationally (acknowledging challenges in acquiring national comparative data) has been acted upon. Evidence of this is provided in *Appendix 2B: Comparison of other programmes or providers* within the application documentation.

A number of additional areas of institutional activity that are relevant to CCT's capacity to deliver programmes at NFQ Level 9 have also been proactively addressed by the provider. Examples of this include CCT's publication of a research strategy and the provider's establishment of a central institutional register for professional development and scholarly activity. Library resources have been expanded; a trial of the IEEE database has been completed and the provider has committed to subscription to either IEEE, ACM or both. New software has also been installed to facilitate easier digital access to course reading materials. An appropriate space on the premises (the Lafayette

room) has been identified, and will be repurposed to become a dedicated study space for postgraduate students.

The panel notes that much of the evidence listed in this section was submitted within CCT's Application for Validation of a Programme of Education and Training to support the provider's case for an extension of the current Approved Scope of Provision. During the site visit, these aspects of the application were discussed further, and additional evidence was provided to the panel by CCT. This evidence notably included an audit document, *Professional Development and Scholarly Activity for Lecturers of the Msc in Applied Software Development at CCT College, 2015 – 2019,* and an additional document outlining the postgraduate qualifications in ICT Education and Education (both obtained, and in progress) of CCT staff.

Overall, the panel is satisfied that the provider has made significant effort to establish appropriate support structures for learners and staff, and is capable of delivering the proposed programme as outlined in the application for validation at NFQ Level 9.

Part 2 Evaluation against the validation criteria

QQI's validation criteria and sub-criteria are copied here in grey panels.

Criterion 1

The provider is eligible to apply for validation of the programme	
a) The provider meets the prerequisites (section 44(7) of the 2012 Act) to apply for validation of the programme.	
b) The application for validation is signed by the provider's chief executive (or equivalent) who confirms that the information provided is truthful and that all the applicable criteria have been addressed.	
c) The provider has declared that their programme complies with applicable statutory, regulatory and professional body requirements.[3]	
Satisfactory (yes, no, partially)	**Comment**
	Yes

Principal programme

The panel finds that the provider meets the prerequisites to apply for validation of the principal programme. Specifically:

- The provider has established procedures for Quality Assurance (QA) under section 29 of the 2012 act. These procedures were approved by QQI following the provider's participation in the reengagement for QA in 2018. As discussed in part 1A of this report, this process took account of the proposed extension of scope of provision.

- The provider has established procedures for access, transfer and progression that pertain specifically to the Level 9 Master of Science in Applied Software Development, and embedded Postgraduate Diploma in Science in Applied Software Development, and these are detailed in section 4 (pp. 72 – 81) of the provider's submission to QQI for validation.

- The provider has complied with section 65 in respect of arrangements for the protection of enrolled learners and provided evidence in the form of a contract providing for the HECA PEL scheme in Appendix 4 of the provider's application for validation.

- The application for validation has been signed by the provider's chief executive equivalent, the College President Neil Gallagher, confirming that the information provided is truthful and that CCT has endeavoured to address all applicable criteria. This declaration states that the programme complies with applicable statutory, regulatory and professional body requirements.

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[3] This criterion is to ensure the programme can actually be provided and will not be halted on account of breach of the law. The declaration is sought to ensure this is not overlooked but QQI is not responsible for verifying this declaration of enforcing such requirements.

Embedded programme[4]

With regard to criterion 1, the provider's eligibility to apply for validation of the embedded programme is demonstrated through achievement of the same prerequisites listed above.

Criterion 2

The programme objectives and outcomes are clear and consistent with the QQI awards sought

a) The programme aims and objectives are expressed plainly.
b) A QQI award is specified for those who complete the programme.
    (i) Where applicable, a QQI award is specified for each embedded programme.
c) There is a satisfactory rationale for the choice of QQI award(s).
d) The award title(s) is consistent with unit 3.1 of QQI's *Policy and Criteria for Making Awards.*
e) The award title(s) is otherwise legitimate for example it must comply with applicable statutory, regulatory and professional body requirements.
f) The programme title and any embedded programme titles are
    (i) Consistent with the title of the QQI award sought.
    (ii) Clear, accurate, succinct and fit for the purpose of informing prospective learners and other stakeholders.
g) For each programme and embedded programme
    (i) The **minimum intended programme learning outcomes** and any other educational or training objectives of the programme are explicitly specified.[5]
    (ii) The minimum intended programme learning outcomes to qualify for the QQI award sought are **consistent with** the relevant QQI awards standards.
h) Where applicable, the **minimum intended module learning outcomes** are explicitly specified for each of the programme's modules.
i) Any QQI minor awards sought for those who complete the modules are specified, where applicable. For each minor award specified, the minimum intended module learning outcomes to qualify for the award are consistent with relevant QQI minor awards standards.[6]

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion. Specifically:

- The programme aims and objectives are clearly expressed in section 1.2 (pp. 18 – 21) of the provider's *Submission to QQI for Validation*.
- A QQI award is specified for learners who complete the programme (Master of Science in Applied Software Development).
- A further QQI award is also specified for the embedded programme (Postgraduate Diploma in Science in Applied Software Development).
- The rationale for the choice of award is evident within the provider's application, and outlined in section 2.2 (p 26).

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[4] Add more subsections if there are more than one embedded programmes.
[5] Other programme objectives, for example, may be to meet the educational or training requirements of a statutory, regulatory or professional body.
[6] Not all modules will warrant minor awards. Minor awards feature strongly in the QQI common awards system however further education and training awards may be made outside this system.

- The award titles are consistent with the QQI's *Policy and Criteria for Making Awards*.
- The programme titles are consistent with the QQI awards sought, and clearly inform prospective learners or stakeholders regarding the nature of the programme.

In addition, CCT has outlined the Minimum Intended Program Learning Outcomes (MIPLOs) in sections 2.4, 2.5 and 2.6 of its application. The MIPLOs have been mapped against QQI award standards for both Computing Standards and Science Standards by the provider on advice from QQI. The panel is satisfied that the MIPLOs are consistent with the relevant QQI awards standards.

Embedded programme

With regard to criterion 2, the panel is satisfied that the consistency of programme objectives and outcomes with QQI awards sought outlined above also applies to the embedded programme.

The panel notes that in section 2.5.3 of the application documentation, CCT have clearly distinguished the embedded programme MIPLOs from the principal programme MIPLOs, and indicated how these map independently to both the Computing Standards and Science Standards.

Criterion 3

The programme concept, implementation strategy, and its interpretation of QQI awards standards are well informed and soundly based (considering social, cultural, educational, professional and employment objectives)

    a)   The development of the programme and the intended programme learning outcomes has sought out and taken into account the views of stakeholders such as learners, graduates, teachers, lecturers, education and training institutions, employers, statutory bodies, regulatory bodies, the international scientific and academic communities, professional bodies and equivalent associations, trades unions, and social and community representatives.[7]

    b)   The interpretation of awards standards has been adequately informed and researched; considering the programme aims and objectives and minimum intended programme (and, where applicable, modular) learning outcomes.

        (i)   There is a satisfactory rationale for providing the programme.

        (ii)   The proposed programme compares favourably with existing related (comparable) programmes in Ireland and beyond. Comparators should be as close as it is possible to find.

        (iii)   There is support for the introduction of the programme (such as from employers, or professional, regulatory or statutory bodies).

        (iv)   There is evidence[8] of learner demand for the programme.

        (v)   There is evidence of employment opportunities for graduates where relevant[9].

        (vi)   The programme meets genuine education and training needs.[10]

    c)   There are mechanisms to keep the programme updated in consultation with internal and external stakeholders.

    d)   Employers and practitioners in the cases of vocational and professional awards have been systematically involved in the programme design where the programme is vocationally or professionally oriented.

    e)   The programme satisfies any validation-related criteria attaching to the applicable awards standards and QQI awards specifications.

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

The provider notes within the application documentation that the programme has been designed and developed following industry consultation, and provides evidence of this in Appendix 3. A stated outcome of industry consultation has been an emphasis within the curriculum on the development of soft skills (e.g. problem solving; presentation skills) that are transferrable to industry environments. Discussion with the provider during the site visit reinforced that industry feedback has been taken on

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[7] Awards standards however detailed rely on various communities for their interpretation. This consultation is necessary if the programme is to enable learners to achieve the standard in its fullest sense.

[8] This might be predictive or indirect.

[9] It is essential to involve employers in the programme development and review process when the programme is vocationally or professionally oriented.

[10] There is clear evidence that the programme meets the **target learners'** education and training needs and that there is a clear demand for the programme.

board by the provider and informed multiple aspects of programme design. For example, during this discussion, CCT noted that since 2016 industry feedback has highlighted a need for graduates who are able to work autonomously and engage in self-directed learning. This has influenced the structure of the various modules and also the capstone, which involves students in developing their team-work, analytical, presentation, and problem-solving skills.

In developing the programme, CCT has drawn upon sector reports, and addressed skills gaps highlighted in the National Employer Survey. Input has been sought from CCT's advisory board, which comprises representatives from Higher Education sector as well as industry. The establishment of an Industry Engagement Forum by CCT, documented in the *Industry Engagement Forum Guide* provided to panel members during the site visit, provides an ongoing channel for communication between industry representatives and the provider.The provider also notes that CCT's admissions department has seen an increasing demand among potential applicants for NFQ Level 9 programmes, and that CCT students and graduates have expressed interest in pursuing studies at this level.

CCT has undertaken comparisons with existing related programmes in Ireland and the UK, and a summary of this has been provided in Appendix 2B *Comparison of other programmes.* Section 3 of the provider's application sets out the rationale for the programme, the education and training needs the programme meets and the alignment of the programme with professional/occupational profiles. Multiple mechanisms to ensure the programme is kept updated are listed in section 3.12. These include programme committee meetings, student representative meetings, annual review, industry review and alumni feedback.

Embedded programme

With regard to criterion 3, the panel is satisfied that the programme concept, implementation strategy and interpretation of QQI awards outlined above also applies to the embedded programme.

Criterion 4

The programme's access, transfer and progression arrangements are satisfactory

a) The information about the programme as well as its procedures for access, transfer and progression are consistent with the procedures described in QQI's policy and criteria for access, transfer and progression in relation to learners for providers of further and higher education and training. Each of its programme-specific criteria is individually and explicitly satisfied[11].

b) Programme information for learners is provided in plain language. This details what the programme expects of learners and what learners can expect of the programme and that there are procedures to ensure its availability in a range of accessible formats.

c) If the programme leads to a higher education and training award and its duration is designed for native English speakers, then the level of proficiency in English language must be greater or equal to B2+ in the Common European Framework of Reference for Languages (CEFRL[12]) in order to enable learners to reach the required standard for the QQI award.

d) The programme specifies the learning (knowledge, skill and competence) that **target learners** are expected to have achieved before they are enrolled in the programme and any other assumptions about enrolled learners (programme participants).

e) The programme includes suitable procedures and criteria for the **recognition of prior learning** for the purposes of access and, where appropriate, for advanced entry to the programme and for exemptions.

f) The programme title (the title used to refer to the programme):-
   (i) Reflects the core *intended programme learning outcomes*, and is consistent with the standards and purposes of the QQI awards to which it leads, the award title(s) and their class(es).
   (ii) Is learner focused and meaningful to the learners;
   (iii) Has long-lasting significance.

g) The programme title is otherwise legitimate; for example, it must comply with applicable statutory, regulatory and professional body requirements.

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

The provider has established clear entry requirements for both full-time and part-time cohorts. The programme information clearly specifies the learning that applicants are expected to have achieved prior to being accepted for enrolment. Specifically, learners are expected to hold an NFQ Level 8 award in a cognate discipline or otherwise establish equivalence of this through RPL or RPEL.

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[11] Each of the detailed criteria set out in the Policy and criteria for access, transfer and progression in relation to learners for providers of further and higher education and training must be addressed in the provider's evaluation report. The detailed criteria   are (QQI, restated 2015) arranged under the headings
- Progression and transfer routes
- Entry arrangements
- Information provision

[12] http://www.coe.int/t/dg4/linguistic/Source/Framework_EN.pdf (accessed 26/09/2015)

CCT has procedures in place to consider applications for RPL and RPEL. The provider will assess any submission of experiential learning portfolios to see that they have achieved NFQ Level 8 outcomes. Notably, during the site visit the provider indicated a preference to direct learners with insufficient experience of higher learning to a pathway for entry via CCT's Higher Diploma in Science and Computing. Learners whose first language is not English must also present evidence of a B2+ CEFRL.

The provider's application documentation sets out the channels for communication with learners, and the nature of the information that will be provided to them. CCT has experience of this in relation to the provider's established programmes, and examples of the provider's current practices in this area demonstrate compliance with QQI regulation on information to learners, including arrangements for Protection of Enrolled Learners (PEL).

The title of the principal program appropriately reflects the programme learning outcomes, is unambiguous and clearly conveys the award class to which it leads.

Embedded programme

With regard to criterion 4, the panel is satisfied that the programme's access, transfer and progression arrangements outlined above also apply to the embedded programme.

The panel further notes that the title of the embedded program appropriately reflects the programme learning outcomes, is unambiguous and clearly conveys the award class to which it leads.

Criterion 5

The programme's written curriculum is well structured and fit-for-purpose
a) The programme is suitably structured and coherently oriented towards the achievement by learners of its intended programme learning outcomes. The programme (including any stages and modules) is integrated in all its dimensions.   b) In so far as it is feasible the programme provides choice to enrolled learners so that they may align their learning opportunities towards their individual educational and training needs.   c) Each module and stage is suitably structured and coherently oriented towards the achievement by learners of the intended *programme* learning outcomes.   d) The objectives and purposes of each of the programme's elements are clear to learners and to the provider's staff.   e) The programme is structured and scheduled realistically based on sound educational and training principles[13].   f) The curriculum is comprehensively and systematically documented.   g) The credit allocated to the programme is consistent with the difference between the entry standard and minimum intended programme learning outcomes.   h) The credit allocated to each module is consistent with the difference between the module entry standard and minimum intended module learning outcomes.   i) Elements such as practice placement and work based phases are provided with the same rigour and attentiveness as other elements.   j) The programme duration (expressed in terms of time from initial enrolment to completion) and its fulltime equivalent contact time (expressed in hours) are consistent with the difference between the minimum entry standard and award standard and with the credit allocation.[14]

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

The programme's individual modules are well-sequenced and oriented toward achievement of the intended learning outcomes. During the site visit CCT staff and representatives responded to a query from the panel regarding the allocation of these to variously 10ECTS (4 modules) and 5ECTS (4 modules) with a clear justification related to the depth of knowledge required within each area. Notably, several of the modules feature 'integrated assessment' pieces. These are essentially cross-modular, and serve to integrate the learning from individual modules. These are enabled by careful and coherent structuring of the programme. The final capstone project further integrates the dimensions of learning focused upon within the preceding modules.

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[13] This applies recursively to each and every element of the programme from enrolment through to completion.
In the case of a modular programme, the pool of modules and learning pathway constraints (such as any prerequisite and co-requisite modules) is explicit and appropriate to the intended programme learning outcomes.

[14] If the duration is variable, for example, when advanced entry is available, this should be explained and justified

Learners are offered a limited degree of choice to individualise learning within particular assessment tasks. However, the panel is satisfied that this is reasonable, given that the programme has a highly specific orientation (software development).

The provider has undertaken detailed mapping of module and programme level learning outcomes. These are included in sections 2 and 7 of the provider's application document. In section 7 of the document, a clear presentation of the aims, objectives and learning outcomes of each module is provided. During the site visit, CCT staff answered queries from the panel relating to the individual modules, and further elaborated on information provided within the documentation. Following this process, the panel is satisfied that the programme is realistically structured and scheduled, and that the programme's objectives and purposes are clear to the provider's staff (and will be sufficiently clear to learners).

The curriculum is well documented. Sufficient detail is provided to make clear the difference between entry standards and learning outcomes for individual modules, and for the programme overall. The program duration is consistent with Master level programmes within Ireland and internationally.

The principal program does not entail a work placement. The 30 ECTS applied development project which is designed to provide students with a learning environment that simulates key aspects of an industry environment. This is supervised by academic staff, and has a rigorous assessment structure.

Embedded programme

With regard to criterion 5, the panel is satisfied that the programme's written curriculum is well structured and fit-for-purpose for the embedded programme. With the exception of comments directly related to the 30ECTS applied development project, the comments above also apply to the embedded programme.

Criterion 6

There are sufficient qualified and capable programme staff available to implement the programme as planned

    a)   The specification of the programme's staffing requirements (staff required as part of the programme and intrinsic to it) is precise, and rigorous and consistent with the programme and its defined purpose. The specifications include professional and educational qualifications, licences-to-practise where applicable, experience and the staff/learner ratio requirements. See also criterion 12 c).

    b)   The programme has an identified complement of staff[15] (or potential staff) who are available, qualified and capable to provide the specified programme in the context of their existing commitments.

    c)   The programme's complement of staff (or potential staff) (those who support learning including any employer-based personnel) are demonstrated to be competent to enable learners to achieve the intended programme learning outcomes and to assess learners' achievements as required.

    d)   There are arrangements for the performance of the programme's staff to be managed to ensure continuing capability to fulfil their roles and there are staff development[16] opportunities[17].

    e)   There are arrangements for programme staff performance to be reviewed and there are mechanisms for encouraging development and for addressing underperformance.

    f)   Where the programme is to be provided by staff not already in post there are arrangements to ensure that the programme will not enrol learners unless a complement of staff meeting the specifications is in post.

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

As discussed in section 1A of this document, an outcome of CCT's reengagement for QA in 2018 was that a recommendation was made to the provider to focus on the development of staff capabilities with regard to teaching at NFQ Level 9. The provider has undertaken a number of actions that reflect a commitment to developing and supporting good teaching and learning practices.

Within the provider's application document, an outline of programme staff is provided in section 8. This includes a list of part-time and full-time staff members, some of whom hold NFQ Level 10 qualifications, and have prior experience in delivery of programmes at NFQ Level 9. During the site

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[15] Staff here means natural persons required as part of the programme and accountable (directly or indirectly) to the programme's provider, it may for example, include contracted trainers and workplace supervisors.

[16] Development here is for the purpose of ensuring staff remain up-to-date on the discipline itself, on teaching methods or on other relevant skills or knowledge, to the extent that this is necessary to ensure an adequate standard of teaching.

[17] Professional or vocational education and training requires that teaching staff's professional/vocation knowledge is up to date. Being qualified in a discipline does not necessarily mean that a person is currently competent in that discipline. Therefore, performance management and development of professional and vocational staff needs to focus on professional/vocational competence as well as pedagogical competence. Professional development may include placement in industry, for example. In regulated professions it would be expected that there are a suitable number of registered practitioners involved.

visit, the panel met with a significant number of the staff involved in the proposed programme's development, and identified as likely to deliver various modules. During the interviews the staff consistently demonstrated appropriate disciplinary expertise, pedagogic understanding and professionalism.

The document also contains clear information pertaining to performance management as well as the composition and responsibilities of the programme board. CCT currently has sufficient staff in post to deliver the proposed programme, and recruitment procedures established should gaps in staffing arise in the future.

Embedded programme

With regard to criterion 6, the panel is satisfied, on the basis of commentary provided in the section above, that available programme staff are qualified and sufficiently capable to implement the programme for both the embedded and the principal programmes.

Criterion 7

There are sufficient physical resources to implement the programme as planned

a) The specification of the programme's physical resource requirements (physical resources required as part of the programme and intrinsic to it) is precise, and rigorous and consistent with the programme, its defined purpose and its resource/learner-ratio requirements. See also criterion 12 d).
   b) The programme has an identified complement of supported physical resources (or potential supported physical resources) that are available in the context of existing commitments on these e.g. availability of:
     (i) suitable premises and accommodation for the learning and human needs (comfort, safety, health, wellbeing) of learners (this applies to all of the programme's learning environments including the workplace learning environment)
     (ii) suitable information technology and resources (including educational technology and any virtual learning environments provided)
     (iii) printed and electronic material (including software) for teaching, learning and assessment
     (iv) suitable specialist equipment (e.g. kitchen, laboratory, workshop, studio) – if applicable
     (v) technical support
     (vi) administrative support
     (vii) company placements/internships – if applicable
   c) If versions of the programme are provided in parallel at more than one location each independently meets the location-sensitive validation criteria for each location (for example staffing, resources and the learning environment).
   d) There is a five-year plan for the programme. It should address
     (i) Planned intake (first five years) and
     (ii) The total costs and income over the five years based on the planned intake.
   e) The programme includes controls to ensure entitlement to use the property (including intellectual property, premises, materials and equipment) required.

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

The physical resources required by the programme are specified in section 9 of the application document. These are precise, and consistent with the defined purpose of the programme.

CCT is an established provider, with systems and resources in place to provide for administrative, technical, IT and human comfort needs. The provider's premises have sufficient learning and teaching spaces to deliver the proposed programme, which are appropriately equipped. Throughout the premises, access and facilities for staff and students with disabilities are available. A room within the existing premises has been identified as a postgraduate study room, which will specifically facilitate the needs of learners enrolled on the proposed programme to access group learning and study spaces.

Embedded programme

With regard to criterion 7, the panel is satisfied, on the basis of commentary provided in the section above, that the provider has sufficient physical resources to implement the programme for both the embedded and the principal programmes.

Criterion 8

The learning environment is consistent with the needs of the programme's learners	
a) The programme's physical, social, cultural and intellectual environment (recognising that the environment may, for example, be partly virtual or involve the workplace) including resources and support systems are consistent with the intended programme learning outcomes. b) Learners can interact with, and are supported by, others in the programme's learning environments including peer learners, teachers, and where applicable supervisors, practitioners and mentors. c) The programme includes arrangements to ensure that the parts of the programme that occur in the workplace are subject to the same rigours as any other part of the programme while having regard to the different nature of the workplace.	
Satisfactory (yes, no, partially)	**Comment**
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

CCT is an established provider, and has a track record of facilitating an appropriate and supportive learning environment. Services to support learners are comprehensive, and include support for students with learning differences and disabilities, pastoral support and career guidance.

During the site visit, the panel explored how the provider meets the needs of international students with CCT representatives, given the potential for the proposed programme to have a high proportion of applications from an international market. CCT representatives outlined appropriate strategies for monitoring and supporting student progress, including with regard to language support.

The learning environment at CCT has also been enhanced through extension of the library services. This now includes regular workshops/classes facilitated by the library staff to support use of library resources for study and research, promote academic integrity and develop academic writing skills.

The proposed programme does not include any modules or components that occur in the workplace.

Embedded programme

With regard to criterion 8, the panel is satisfied, on the basis of commentary provided in the section above, that the learning environment is consistent with the needs of the programme's learners for both the embedded and the principal programmes.

Criterion 9

There are sound teaching and learning strategies
a) The teaching strategies support achievement of the intended programme/module learning outcomes.
b) The programme provides authentic learning opportunities to enable learners to achieve the intended programme learning outcomes.
c) The programme enables enrolled learners to attain (if reasonably diligent) the minimum intended programme learning outcomes reliably and efficiently (in terms of overall learner effort and a reasonably balanced workload).
d) Learning is monitored/supervised.
e) Individualised guidance, support[18] and timely formative feedback is regularly provided to enrolled learners as they progress within the programme.

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

The provider's Teaching, Learning and Assessment strategy is provided in Appendix 10 of the provider's submission for validation of the proposed programme, and is well expressed. However, the strategy is institutional, and not specific to delivery of the proposed programme at NFQ Level 9. Subsequently, during the site visit, the panel's discussion with CCT teaching staff focused on elicitation of the pedagogic strategies they intended to implement which would support achievement of the intended learning outcomes for NFQ Level 9. Teaching staff were able to articulate the shifts in their own practice needed to ensure the delivery of the proposed program is level-appropriate. These included, for example, an emphasis on facilitation (as opposed to a transmission model), a greater expectation of learner independence, use of problem-based learning designed to elevate learning in relation to Bloom's taxonomy, the integration of theory and practice, and the application of knowledge to unfamiliar problems.

Within the programme, assessment practices that are authentic in relation to industry practice exist within the taught modules and within the supervised applied development project. Learning is supervised, and opportunities for learner support and feedback are evident.

Embedded programme

With regard to criterion 9, the panel is satisfied, on the basis of commentary provided in the section above, that there are sound learning and teaching strategies in place to support learners' achievement of outcomes in both the embedded and the principal programmes.

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[18] Support and feedback concerns anything material to learning in the context of the programme. For the avoidance of doubt it includes among other things any course-related language, literacy and numeracy support.

Criterion 10

There are sound assessment strategies
a) All assessment is undertaken consistently with ***Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards***[19]
b) The programme's assessment procedures interface effectively with the provider's QQI approved quality assurance procedures.
c) The programme includes specific procedures that are fair and consistent for the assessment of enrolled learners to ensure the minimum intended programme/module learning outcomes are acquired by all who successfully complete the programme.[20]
d) The programme includes formative assessment to support learning.
e) There is a satisfactory written **programme assessment strategy** for the programme as a whole and there are satisfactory module assessment strategies for any of its constituent modules.[21]
f) Sample assessment instruments, tasks, marking schemes and related evidence have been provided for each award-stage assessment and indicate that the assessment is likely to be valid and reliable.
g) There are sound procedures for the moderation of summative assessment results.
h) The provider only puts forward an enrolled learner for certification for a particular award for which a programme has been validated if they have been specifically assessed against the standard for that award.[22]

Satisfactory (yes, no, partially)	Comment
	Partially

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

CCT is guided by QQI *Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards.* The provider has established QQI approved QA procedures for assessment, including moderation, and the assessment structure of the proposed programme is designed to also interface with these.

With specific regard to the proposed programme, CCT has included in the submission for validation the indicative assessment schedules for full-time and part-time learners in Appendix 5C and Appendix 5D respectively, along with samples of award stage assessment. During the site visit, a hard copy of an assignment brief for a cross-modular assessment piece for the modules 'Enterprise Software Development', 'Cloud Services & Integration' and 'Systems Security' was also distributed for discussion. During that discussion, CCT staff were able to provide clear rationales for assessment structures and strategies within individual modules and for the program overall, for example, that the

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[19] See the section on transitional arrangements.

[20] This assumes the minimum intended programme/module learning outcomes are consistent with the applicable awards standards.

[21] The programme assessment strategy is addressed in the Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards. See the section on transitional arrangements.

[22] If the award is a QQI CAS compound award it is not necessarily sufficient that the learner has achieved all the components specified in the certification requirements unless at least one of those components is a capstone component (i.e. designed to test the compound learning outcomes).

integrated (cross-modular) assessments mirror a real world experience and appropriately reflect the applied focus of the proposed programme. The panel is satisfied that the assessment structures within modules and associated marking schemes are conducive to fair and consistent assessment of enrolled learners.

Some areas of ambiguity exist around the management of assessment for the 30 ECTS applied development within the principal programme. The panel acknowledges that these are in part due to the currently future/projected nature of the programme. Within this report, a summary of recommended special conditions for validation is provided. These recommended special conditions pertain specifically to these areas of ambiguity.

Embedded programme

With regard to criterion 10, the panel is satisfied, on the basis of commentary provided in the section above, that there are sound assessment strategies in place to support learners' achievement of outcomes in the embedded programme. The embedded programme does not include the 30 ECTS applied development project. Subsequently, commentary in relation to that project, and related proposed special conditions for validation, are not relevant to the Postgraduate Diploma in Science in Applied Software Development.

Criterion 11

Learners enrolled on the programme are well informed, guided and cared for
a) There are arrangements to ensure that each enrolled learner is fully informed in a timely manner about the programme including the schedule of activities and assessments.
b) Information is provided about learner supports that are available to learners enrolled on the programme.
c) Specific information is provided to learners enrolled on the programme about any programme-specific appeals and complaints procedures.
d) If the programme is modular, it includes arrangements for the provision of effective guidance services for learners on the selection of appropriate learning pathways.
e) The programme takes into account and accommodates to the differences between enrolled learners, for example, in terms of their prior learning, maturity, and capabilities.
f) There are arrangements to ensure that learners enrolled on the programme are supervised and individualised support and due care is targeted at those who need it.
g) The programme provides supports for enrolled learners who have special education and training needs.
h) The programme makes reasonable accommodations for learners with disabilities[23].
i) If the programme aims to enrol international students it complies with the *Code of Practice for Provision of Programmes to International Students*[24] and there are appropriate in-service supports in areas such as English language, learning skills, information technology skills and such like, to address the particular needs of international learners and enable such learners to successfully participate in the programme.
j) The programme's learners will be well cared for and safe while participating in the programme, (e.g. while at the provider's premises or those of any collaborators involved in provision, the programme's locations of provision including any workplace locations or practice-placement locations).

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

Within the provider's submission for validation of the proposed programme, a student handbook is provided in Appendix 9B, which contains information specific to the programme. Within that handbook, learners are referred to the location of the provider's complaints and appeals policy. This is made available to learners in the CCT QA manual available on the provider's website. It should be noted that the programme is not modular, and students are not required or able to make choices regarding selection of appropriate learning pathways.

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[23] For more information on making reasonable accommodations see www.AHEAD.ie and QQI's Policies, Actions and Procedures for Access, Transfer and Progression for Learners (QQI, restated 2015).

[24] See Code of Practice for Provision of Programmes to International Students (QQI, 2015)

CCT has procedures in place to support learners with disabilities, and makes reasonable accommodations as required to facilitate individual learner needs. As an established provider, CCT has experience of enrolling and supporting international students. CCT complies with the *Code of Practice for Provision of Programmes to International Students*. During the site visit, the panel discussed the issue of support for potential international students on the proposed programme, with particular reference to English language support, and was satisfied with the provider's responses.

Embedded programme

With regard to criterion 11, the panel is satisfied, on the basis of commentary provided in the section above, that learners enrolled on both the embedded and the principal program are well informed, guided and cared for.

Criterion 12

The programme is well managed

   a) The programme includes intrinsic governance, quality assurance, learner assessment, and access, transfer and progression procedures that functionally interface with the provider's general or institutional procedures.

   b) The programme interfaces effectively with the provider's QQI approved quality assurance procedures. Any proposed incremental changes to the provider's QA procedures required by the programme or programme-specific QA procedures have been developed having regard to QQI's statutory QA guidelines. If the QA procedures allow the provider to approve the centres within the provider that may provide the programme, the procedures and criteria for this should be fit-for-the-purpose of identifying which centres are suited to provide the programme and which are not.

   c) There are explicit and suitable programme-specific criteria for selecting persons who meet the programme's staffing requirements and can be added to the programme's complement of staff.

   d) There are explicit and suitable programme-specific criteria for selecting physical resources that meet the programmes physical resource requirements, and can be added to the programme's complement of supported physical resources.

   e) Quality assurance[25] is intrinsic to the programme's maintenance arrangements and addresses all aspects highlighted by the validation criteria.

   f) The programme-specific quality assurance arrangements are consistent with QQI's statutory QA guidelines and use continually monitored completion rates and other sources of information that may provide insight into the quality and standards achieved.

   g) The programme operation and management arrangements are coherently documented and suitable.

   h) There are sound procedures for interface with QQI certification.

Satisfactory (yes, no, partially)	Comment
	Yes

Principal programme

Following review of the provider's application documentation and a site visit, the panel finds that the provider has satisfied this criterion.

CCT's QA was recently approved by QQI (in 2018) through the current reengagement process. That process encompassed a review of the provider's governance structure, assessment practices and access, transfer and progression procedures. The proposed program interfaces with CCT's current QA. At the time of reengagement the provider's intent to apply for an extension of current Approved Scope of Provision was declared, and recommendations were made in relation to this.

The submission for validation of the proposed programme contains information regarding programme-specific criteria for the selection of suitable staff to teach into individual modules. The documentation also outlines the physical resources necessary to meet the programme's requirements. Management and operations arrangements for the proposed programme are provided in the submission documents, and are clear and coherent.

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[25] See also QQI's Policy on Monitoring (QQI, 2014)

Embedded programme

With regard to criterion 12, the panel is satisfied, on the basis of commentary provided in the section above, that both the embedded and the principal program are well managed.

Overall recommendation to QQI

1.1   Principal programme

Satisfactory subject to proposed special conditions (specified with timescale for compliance for each condition; these may include proposed pre-validation conditions i.e. proposed (**minor**) things to be done to a programme that almost fully meets the validation criteria before QQI makes a determination);[26]

1.1.1   Reasons[27] for the overall recommendation

1.2   Embedded programme

Satisfactory (meaning that it recommends that QQI can be satisfied in the context of unit 2.3) of Core policies and criteria for the validation by QQI of programmes of education and training;

1.2.1   Reasons[28] for the overall recommendation

Summary of recommended special conditions of validation

The panel proposes as a special condition of validation that CCT undertake the following five actions with regard to the 30 ECTS applied development team project. As it represents a significant piece of work and assessment within the proposed programme, this project must be robust in structure and effectively supervised. The proposed special conditions will contribute to CCT's effective management of this aspect of the programme.

1. The panel proposes that CCT create a role for an industry engagement liaison specific to the applied development project. Responsibility should be designated to the holder of this role for ensuring the applied development projects are, wherever possible, derived from collaborations with industry partners. In all instances, the projects should be informed by industry, insofar as is practicable with regard to the learning outcomes.

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[26] Normally an application that fails to meet the criteria in any of its aspects will be considered as not satisfactory. Nevertheless, so as to ensure that the validation process will not be implemented unreasonably, if an independent evaluation finds that a programme virtually meets the validation criteria but needs some minor modifications, the independent evaluation could conclude "Satisfactory subject to recommended special conditions" where the special conditions prescribe the defects that require to be corrected.

[27] Give precise reasons for the conclusions organised under each of the 12 criteria (for the programme and each embedded programme and any modules proposed to lead to QQI awards) citing supporting evidence. If any criteria or sub-criteria are not met by the application this must be stated explicitly giving precise reasons with evidence. A "Not Satisfactory" recommendation may be justified if any one of the applicable criteria or sub-criteria are not demonstrated to be satisfied.

[28] Give precise reasons for the conclusions organised under each of the 12 criteria (for the programme and each embedded programme and any modules proposed to lead to QQI awards) citing supporting evidence. If any criteria or sub-criteria are not met by the application this must be stated explicitly giving precise reasons with evidence. A "Not Satisfactory" recommendation may be justified if any one of the applicable criteria or sub-criteria are not demonstrated to be satisfied.

2. The panel proposes that CCT integrate a clearer structure to the project architecture. This could, for example, involve use of an agile or scrum methodology. Note that the panel does not identify a particular process to be followed. However, it is recommended that the project architecture and processes be aligned to industry practices.

3. The panel proposes that CCT formalise closer tracking by supervisors of individual contributions to the team project. It is recommended that this occur at weekly intervals with academic supervisors, and, where applicable, with industry partners at three week intervals.

4. The panel proposes that CCT develop a clearer rationale and process for team formation. This is recommended to integrate some elements of self-selection to an institutional team allocation process. Clear protocols for facilitation and monitoring of this are necessary, and will safeguard the best interests of students and provider.

5. The panel proposes that CCT extend current staff development activity to encompass the skills and competences needed to provide effective supervision at NFQ Level 9. The panel acknowledge a number of positive steps taken by the provider to prepare staff to teach modules at this level. However, CCT are advised that the skills and competences characteristic of effective postgraduate supervision need to be additionally acknowledged and developed.

Summary of recommendations to the provider

In addition to the proposed special conditions of validation listed above, the panel makes two further recommendations to the provider for enhancement of the programme.

- It is recommended that the provider give further consideration to opportunities for professional certification to be embedded into some of its taught modules, as this may assist with programme marketing and will create additional value for students.

- It is recommended that the provider continue to build upon steps already taken to engage staff in a range of Continuing Professional Development (CPD) activities pertaining to Teaching and Learning. CCT is encouraged to facilitate a wider group of staff to engage directly with sector specific, national and international Communities of Practice (CoP) surrounding Teaching and Learning.

The conditions pertaining to the Master of Science in Applied Software Development are not relevant to the embedded programme, as the 30 ECTS allocated to the applied development team project are excluded here.
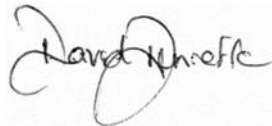
However, the recommendations made by the panel and listed in the previous section should be considered to also pertain to the Postgraduate Diploma in Science in Applied Software Development.

Declarations of Evaluators' Interests

This report has been agreed by the evaluation panel and is signed on their behalf by the chairperson.

Panel chairperson: David Denieffe   Date: 20/5/2019

Signed:

1.3   Disclaimer

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